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SELECTED ENVIRONMENTAL FACTORS AND PLAY IN TWO GRADE ONE CLASSROOMS

by

© MARY NEELY

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF EDUCATION

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James Blakey
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Date: September 20, 1985

ABSTRACT

The purpose of this inquiry was to investigate and describe the presence of play in two Grade One classrooms through the three observable factors of pupil-teacher interaction, pupil-pupil interaction and pupil-material transaction. Two heterogeneous Grade One classrooms of differing environmental design participated in the study. The researcher observed the behaviors of four target pupils in each of the two classroom settings. These observations were recorded using a time sampling procedure and a coded observational system. The data collected were analyzed to provide a description of the setting in relation to pupil-teacher interaction, pupil-pupil interaction, and pupil-material transaction, and subsequently play in each classroom setting. The results of the data indicate that the environmental design of a classroom does influence pupil-pupil interaction, pupil-material transaction and play. However, further evaluation is required to investigate the nature and make up of pupil-teacher interaction in classrooms of different environmental design. A conclusion was drawn that if play is considered as having importance in the education of young children in a classroom setting, consideration must be given to the environmental design of a classroom in order to promote the occurence of play. Additional findings were reported, their implications for educational practice and suggestions for further research given.

PREFACE

The research for this study was conducted in two grade one classrooms through the observed behaviour of four target pupils in each classroom. Kae Neufeld, a fellow researcher, simultaneously gathered data for her independent study using the same classrooms and target pupils. Her study was concerned with physical, emotional and social development of the pupils.

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CHAPTER 1

INTRODUCTION TO THE STUDY

> Since the activity of the child is play, the most natural and efficient way for a child to acquire competency in any curricular area is through play activity (Weininger, 1979, p.5)

Many years ago Frobel (1887) wrote that the purpose of teaching and instruction was to bring more and more out of man rather than put more and more into man. More recently, Dormoyer (1981) states that education should not be thought of as something which is done to children but instead something which children do for themselves spurred on by a stimulating environment. A child's nature activity within a stimulating environment is play. The incorporation of play experiences into the school curriculum has become a recent concern of a number of educators (Glickman, 1979; Weininger, 1979; Oppenheim, 1984).

Play is a learning process whereby the child experiments, makes decisions, tests new concepts, solves problems, practices skills and social roles, and adds to existing knowledge. Through play, their natural activity, children construct their intelligence (Piaget, 1962; Weininger, 1978) and participate at their own level of development.

Many early childhood educators have not given recognition to the child's natural medium of learning, play, and have given information rather than allowing children to discover this information for themselves through their own experiences (Frank, 1964; Weininger, 1979).The growth of logical and abstract functioning is often arrested rather than promoted by premature teaching of academic skills and this emphasis on academic skills often disconnects those skills from the real life experiences of the child.

Play integrates the child's intellectual, social, emotional and physical development. "Reared in cramped spaces and glued to the 'idiot box'" (Glickman, 1979, p.454), today's children simply do not play as children in the past have done. Deprived of early play experiences, children have problems in later academic development (Spodek, 1969; Elkind, 1979). Thus, utilization of play in the early classroom years is seen as vital for the total development of the child.

Today's educators must then consider the thesis that if:

> 1) ... play is important to the child's growing cognitive abilities, 2) ... the child lives in a home environment not conducive of play, and 3) ... television diverts children from much of the time they would normally devote to play, then schools, which are in the business of teaching children to master basic academic skills, should be trying to fill the void. . . The child who does not play out of school and seldom has the opportunity to play in school has a nonexistent readiness base for mastery of reading and arithmetic skills (Glickman, 1979, p. 454-455).

Play, a valuable learning strategy, will occur in the classroom setting if a conducive environment exists.

PURPOSE OF THE STUDY

This study describes the individual use of learning time by eight students, four in each of two grade one classrooms, with particular focus on time actually spent in three processes related to learning: pupil-teacher interaction, pupil-pupil interaction and pupil-material transaction. Using the three processes as a base, the study describes the time spent playing in each natural classroom setting. The main purpose of this study was to ascertain if certain classroom environments are more conducive to the occurence of play.

SPECIFIC RESEARCH QUESTIONS

1. What is the relative amount of classroom time spent and the nature of pupil-teacher interaction in the natural classroom setting?
2. What is the relative amount of classroom time spent and the nature of pupil-teacher interaction in the natural classroom setting?
3. What is the relative amount of classroom time spent and the nature of pupil-material transaction in the natural classroom setting?
4. What is the effect of the given environment on the three processes related to learning: pupil-teacher interaction, pupil-pupil interaction and pupil-material transaction?

GENERAL RESEARCH QUESTION

1. Does play occur in the natural classroom setting and if so what is the nature of that play?

DEFINITION OF TERMS FOR THE PURPOSE OF THIS STUDY

Closed structured materials: materials used in such a way that an externally predetermined idea or product is produced.

Child's wait time: time pupils spend in waiting for the next learning activity.

Creativity: the pupil's capacity to perform a task which requires ingenuity in formulating an answer that is not readily suggested by the materials themselves or by another person (Weininger, 1972).

Dialogue: conversation between two people, a back and forth interaction.

Early Childhood: children from four to eight years of age and normally considered to be in kindergarten to grade three in our school system.

Environmental descriptors: ways of describing how time, space, materials and human resources are utilized in the classroom setting.

Environmental design: the use of time, space, materials and human resources in a given setting.

Experimentation: action or process undertaken to discover something not yet known.

Language: the systems of signs through which we represent and convey our meaning (Tough, 1979).

Open structured materials: materials used in such a way that original or unusual ideas or products are produced.

Outgoing child: a child who takes initiative, readily approaches new experiences, expresses self with ease, and involves self freely in sharing ideas and cooperating with others.

Perfunctory performance: action or process done as part of a routine (Webster's New World Dictionary, 1968).

Play: Play is pleasurable, enjoyable. Play has no extrinsic goals. Its motivation is intrinsic and serves no other goals. In fact, it is more an enjoyment of means than an effort devoted to some particular end. Play is spontaneous and voluntary. Play involves some active engagement on the part of the player. Play has certain systematic relations to what is not play (Garvey, 1977).

Sociodramtic play: an advanced form of pretend play in which two or more children adapt roles and attempt to create real life situations.

LIMITATIONS OF THE STUDY

A factor limiting the generalizability of the study is the restrictiveness of the sample. The time sampling procedure over a

sufficiently large number of minutes was utilized to minimize the error of generalizing the behavior of each student at the moment of observation. The four target pupils in each of the two classroom settings were assumed to be representative of the given classroom population.

The weeks of observation were assumed to be representative of the pupils' experiences over a longer period of time in their grade one school year. The week chosen for observation in each classroom was seen by each teacher involved to be an average week in their classroom.

The study takes into account only a portion of the variables which are part of learning in a classroom environment. No attempt was made to deal with the other variables which undoubtedly contribute to the total growth of the child.

The main focus of the study was observed pupil behavior. Other factors such as teachers, administrators, and parents, which undoubtedly affect the total classroom environment were not considered.

The influence of observers in a classroom is impossible to determine. While both teachers felt the observers in no way affected the natural setting in their classroom, neither teacher nor pupils were informed of the specific nature of the observations or of the identity of the pupils who were the focus of these observations. At the completion of the observations the teachers were informed of the target pupils and the nature of the observations. It was therefore assumed that the observed behaviors were not altered due to the observer's involvement in the classroom setting.

SIGNIFICANCE OF THE STUDY

Play has long been considered essential to child development. The past decade, however, has witnessed a re-newed interest in the role of play in childhood (Christie and Johnson, 1983) and therefore, interest in the inclusion of play in early childhood education programs. Education through the child's natural medium of learning, play, is not a new notion but may better accommodate the education of 'modern' children, who play less (Glickman,1979) and obtain more information outside the school environment (Coleman, 1976) than children in the past.

Today's children must learn to use the information they possess through their own first hand play experiences. By describing the relative amount of classroom time spent and the nature of pupil-teacher interaction, pupil-pupil interaction, pupil-material transaction, this study will attempt to demonstrate the manner in which these processes are being utilized in grade one programs to promote the occurrence of play in the natural classroom setting.

There is presently little data which describes the possible differences in classrooms of a similar grade level (Evans, 1979). A description of the two grade one settings will document the variations in pupil's activities in the aforementioned processes, thereby demonstrating the various differences between classrooms of a given grade level.

CHAPTER 2

REVIEW OF RELATED RESEARCH AND LITERATURE

> The principal goal of education is to create (people) who are capable of doing new things, not simply of repeating what other generations have done - (people) who are creative, inventive and discoverers. The second goal of education is to form minds which can be critical, can verify and not accept everything, they are offered. . .So, we need pupils who are active, who learn early to find out by themselves, partly by their own spontaneous activity and partly through the materials we set up for them. (Elkind and Duckworth, 1973, p. 196)

In this chapter a review of the theoretical background and related play research is presented to establish the importance of play in Early Childhood Education programs.

EDUCATIONAL RELEVANCE OF PLAY

The educational relevance of play had its beginning in the French revolution. Rousseau (1762) was one of the first developmentalists to believe that play contributed to children's growth and learning. He believed we should treat each child as unique; using the child's own inclinations to question, act, and explore as the foundation for learning.

Rousseau maintained that a child should not be taught the right answers but helped to learn to solve problems.

Frobel (1887) emphasized the role of the teacher as that of organizing the environment, providing materials, and encouraging the child to discover meaning in objects. He cautions:

> Do not however tell . . . in words much more than . . . could (be found) . . . without your words. For it is, of course, easier to hear the answer from another, perhaps to only half hear and understanding it, than it is to seek and discover it . . . Do not, therefore, always answer your children's questions at once and directly; but as soon as they have gathered sufficient strength and experience, furnish them with the means to find the answers in the sphere of their own knowledge (p. 85-87)

Pestalozzi (1898) maintained, as did Rousseau, that the child is an active explorer of nature, and stated that a child needs concrete, tactile experiences prior to abstract, symbolic experiences. Rousseau (1762), Frobel (1887), and Pestalozzi (1898), all viewed play as the predecessor for abstract symbolic thinking and therefore as having educational value.

Dewey (1915) placed renewed emphasis on educating indirectly through the use of exploration, inquiry, problem solving, and creativity. He believed adults should control the education of the young by controlling the environment and not through a direct education methodology. "Let the children lead you and you will not go far astray. Study them and their actions serve as your guide" (Putnam, 1924, p. 281). The curriculum should, therefore, be developed around the needs of the child (Gessell, 1928; Freud, 1935; Lewin, 1939; Kelly, 1947) and the child's natural medium of learning, play.

LANGUAGE: AN IMPORTANT ASPECT OF PLAY

Children's first hand experiences form the basis of their learning and understanding (Piaget, 1962). Concrete experience, however, is only part of all children's total experiences. Social exchange with others is an important aspect of the child's lived experiences. Talk, which relates directly to children's everyday concrete experiences, is a large part of ones social exchange. Furthermore, talk plays an essential role in helping children understand their experiences (Tough, 1979).

Concrete experiences and language influence one another (Vygotsky, 1962). Thus, children learn to order and classify experiences as they hear and use words. Many concepts cannot be developed by direct experiences alone, and language helps children understand abstract relationships not easily recognized (Vygotsky, 1962). With exposure, words come to elicite common understandings, abstracted from the many first hand experiences, and thus become a means of communicating when events have passed or have not yet taken place. Children who have linguistic resources and first hand experiences, but have not been encouraged to use language to explore the potential for meaning in situations, are often unable to do so and thus are unable to project beyond the immediate situation (Tough, 1979).

Although children's thoughts arise from their own actions, language is important as it may increase the range and rapidity of thought (Piaget and Inhelder, 1969). A report by the Bullock

committee, 'A Language for Life' (1975), ". . .draws on evidence to show that language underpins and structures most forms of learning and that at the centre of the thinking and learning processes lies the talk that the child has with other people" (cited in Tough, 1979). Language plays an essential part in conceptual development (Vygotsky, 1962) and as children learn to use language they also learn to think (Luria and Yudovich, 1971).

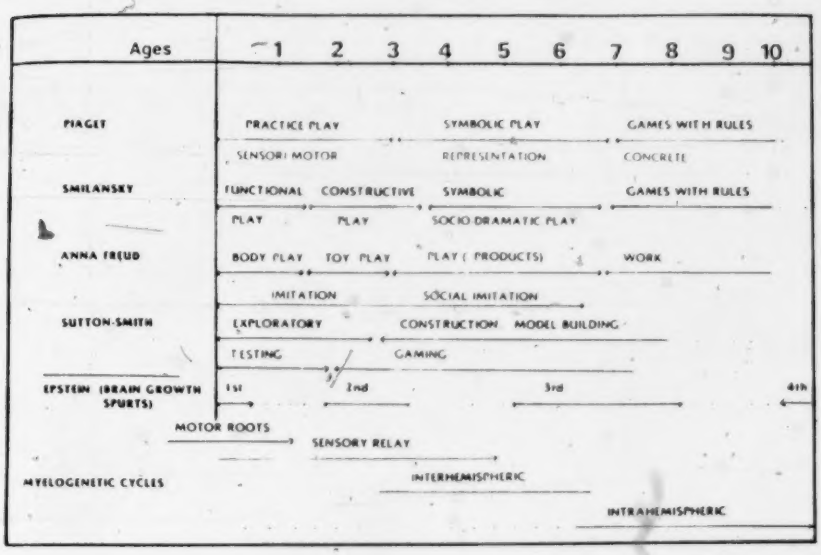
Educators must keep in mind that:

> Language plays a major part in communication in school If the child cannot use language to express his ideas and intentions, then others can only guess what he is making of his experiences. If he cannot understand what teachers and others want to communicate to him through the use of language, then he will understand little of his experiences in school (Tough, 1979).

PLAY THEORIES AND BRAIN DEVELOPMENT

"Mental development is manifestly linked to and limited by the development of the child's brain" (Epstein, 1978, p. 343). Recent brain and neuropsychological research relates closely to research and theory about play. Reciprocity between brain functioning and human activity is being uncovered (Tipps, 1981). Epstein (1978) has found that the human brain increases in size at specific periods during life. The "experimentally established intervals correlate in time with the classical stages of intellectual development as described by Piaget" (Epstein, 1978, p.344) as well as the play stages described by Anna Freud (1965), Smilansky (1968) and Sutton-Smith (1971, 1975).

CHRONOLOGICAL RELATIONSHIP OF SELECTED PLAY THEORIES AND NEUROLOGICAL DEVELOPMENT



(Tipps, 1981)

It must be emphasized that the brain growth stages are a scientific fact and not merely a theoretical notion (Eptstein, 1978). The transition from one stage of play to the next requires external input; a truly definable stage could not possess essential factors needed for advancement on to the next stage. A prior change in the structure containing the mind, an expansion of the brain, enables the passing from one stage to the next (Epstein, 1978).

FINDINGS OF RELATED PLAY RESEARCH

The past decade has witnessed a growing interest in the role of play in child development. A wide variety of psychological constructs can now be seen as being connected with the play experience. These constructs include symbolism, the development of language forms, the acquisition of social skills, exercising control

over information levels, problem solving, creative behaviour, and coping with anxiety and personal conflicts (Sutton-Smith, 1979). The many constructs indicate the richness and ambiguity of the concept itself and result in the fact that "everyone recognizes play. . .but one cannot frame it into a single impeccable definition" (Bruner, 1975, p. 81).

Vandenberg (1980), and Krasnor and Pepler (1980) provide a summary of the common elements that are present in most definitions of play:

> a) behaviour which is intrinsically motivated, spontaneous, and self generated; b) behaviour which is pleasurable or connected with positive affect expressed in the absence of highly anxious conditions, that is, play is not serious; c) behaviour which is variable from child to child and from one situation to the next, that is, play is flexible; and d) behaviour which is not literal, that is, play seems to express some element of pretending, fantasy of imagination in approaching a relatively familiar environment (cited in Christie and Johnsen, 1983, p. 93).

There is a growing body of support, both empirical and philosophical, for the utilization of play in the development and implementation of the curriculum. Play, the first business of childhood and the forerunner of adult competence, allows practice in creativity and problem solving (Bruner, 1975). Garvey (1977) states that ". . .play has been linked with creativity, problem solving, language learning, the development of social roles and a number of other cognitive and social phenomena" (p. 5). Two essential elements present in children's play are thinking and social interaction (Yawkley and Trostle, 1982).

Piaget (1962) stated: "Play constitutes the extreme pole of

assimilation of reality to the ego, while at the same time it has something of the creative imagination which will be the motor of all future thought and even reason" (p. 162). Research has found a positive relationship between playfulness and creativity. Playfulness was one of the traits discovered that differentiated more creative from less creative children (Torrance, 1961; Wallach and Kogan, 1965). Liberman (1965) and Durrett and Huffman (1968) found that kindergarteners rated high in terms of playfulness scored higher on three divergent thinking tasks than children receiving low playfulness ratings. Play contributes to creativity by increasing children's repertoires of novel associations with objects (Sutton-Smith, 1968) as well as creating a generalizable set for the production of novel responses to objects (Dansky and Silverman, 1973, 1975). Johnson (1976) found a high correlation between the frequency with which low socio-economic status preschoolers engaged in sociodramatic play and several measures of divergent thinking. Sociodramatic play training of preschoolers resulted in significant gains on measures of creativity (Feitelson and Ross, 1973; Dansky, 1980). Thus, research indicates that play facilitates creativity.

Many research studies have focused on play and problem solving revealing that unstructured activity with objects can enhance children's problem solving ability. Sylva, Bruner, and Genova (1976) found in a study of the effects of play on the problem solving abilities of three to five year olds, that the play group engaged in more goal directed activity; were more persistent; did as well at

solving a given problem as the group that observed the solution; and did considerably better than the no treatment control group. Smith and Dutton (1979) had similar results as Sylva et al. (1976) and in addition found that the play group performed better than the trained group on a second more difficult task both in solution time and the number of required hints. They concluded that play is superior to direct training in problem solving tasks that require flexible innovative solutions. Vandenberg (1981) investigated the effects of age and task characteristics on the relationship between play and problem solving. Two tasks were presented to the children, one similar to the task used by Sylva et al. (1976) and a simpler one that involved tying pipe cleaners together to dislodge a sponge stuck in a pipe. The results showed that the play group performed better on the first task but not the second task. Vandenberg hypothesized that all children had prior experience with pipe cleaners and thus the prior experience may have been responsible for the lack of significant differences on the second simpler task. A significant age effect was found with older children performing better than younger children on both tasks. Zammarelli and Bolten (1977) found that the play group had a significantly better understanding and memory of the concept than two control groups when they explored the hypothesis that play could facilitate solving an advanced mathematical concept formation task. Thus, research has shown that play increases problem solving abilities.

Smilansky (1968) hypothesized that gains in language performance would result in enhancing the quality of children's

sociodramatic play. Research reveals that children do gain valuable language practice from sociodramatic play (Garvey, 1974,; Lovinger, 1974). Cazden (1976) hypothesized that play not only allows children to practice and master aspects of language but it also increases children's metalinguistic awareness, the ability to recognize and analyze language forms and rules as objects in their own right. Collier (1979) investigated the hypothesis that language play leads to increased metalinguistic awareness and found that, in comparison with the control group, the experimental group made significant gains on a test measuring metalinguistic awareness of selected syntactic structures. Observational studies reveal that children frequently play with language forms and rules, and exhibit advanced language skills while engaged in sociodramatic play (Christie and Johnson, 1983). Play, therefore, increases children's communication and language skills (Yawkley, 1979).

A significant correlation and causal relation has been found between a child's ability to play and achieve on school readiness tests. Rubin and Maioni (1975) found a positive relationship between preschooler's ability to play and Piagetian classification tasks while Yawkley (1978) found a positive relationship between their ability to play and their performance on cognitive achievement tests. A study conducted by Evans (1979) indicated that children in informal kindergarten through grade two classes engaged to a greater extent in child-to-child interaction, play activities, individual conferences with the teacher, and independent work than students in comparison classrooms. Students in the comparison classrooms spent more of their

time on word analysis, printing activities, independent silent reading, and teacher-led group experiences. For the purpose of the study Evans (1979) described informal classrooms as

> child centered, play-based programmes in which children engaged in self selected, self directed activities, in which reading instruction was to be based on the child's own language through self-composed stories and personal word banks, in which pupils would have many opportunities to develop oral language competence through interactions with adults and peers, and in which meaningful learning was to be rooted in concrete materials and real experiences (p. 15).

It was noted that subsequent variation in curricula was observed across all classrooms. This study found that year end testing indicated no differences between the two groups in language development, problem solving, fine motor-figural perception, role-taking or understanding of classification, but performance appeared to be lower in the informal classrooms with regard to reading and mathematics. It must be noted here that no control on teacher excellence was taken in the study.

Pellegrini (1980) found from a study conducted with 65 kindergarten children that ability to play predicted achievement and concluded "administrators and teachers of young children concerned with student's standardized test performance should create an environment that allows children to engage in many forms of free play" (Pellegrini, 1980, p. 535). The study suggested that skills used in higher modes of play were also necessary in reading and writing. Despite the seemingly contradictory findings of Evans (1979), research results indicate the significance of play in early childhood education.

PLAY AND EARLY CHILDHOOD EDUCATION

Play is the child's natural medium of learning and "much of the knowledge children absorb is best acquired by exploration in the real world where they may freely and actively construct their vision of reality, rather than be passively instructed about it" (Chittenden, 1969, p. 12).

Defining constructive or "good" play and increasing such forms of play (Chance, 1979) is an educational concern. Three ways educators may view play can be best demonstrated through over simplification as 'all play is good', 'some types of play are good', and 'all play is not good' (Johnson and Ershler, 1982). Kleiber (1976) and Weininger (1979) hold the view of the first position. The last point of view is held by those who are advocating 'no-nonsense' 'back-to-basic' approaches to early childhood education. The middle approach has been addressed in a variety of ways. Gelbach (1976) makes a distinction between 'educational play' and 'ordinary play'. Educational play incorporates instructional functions normally performed by the teacher. This play type has specified incremental learning objectives in addition to the provision of practice and discriminative feedback. Gelbach (1976) states that play equipment and activities can be systematically designed by adults to produce predictable results. Spodek (1974) states there is a difference between 'educational play' and 'recreational play'. In educational play there is a teacher involvement and this play type has learning consequences. Spodek (1974) reminds teachers that too much

imposition can disrupt the play. Therefore, teachers should intervene at opportune moments to raise the level of the child's behaviour as the child will gain more developmentally when playing to capacity.

Research has shown adult intervention, to enhance play ability and to extend play activity, is imperative for development (Strom, 1974; Smilansky, 1968). "To contribute to the development or education of the child, play opportunities need to be appropriate and challenging" (Johnson and Ershler, 1982).

Educators are beginning to associate play with learning and competency. Children are very familiar with play. It is their major achieving pattern and provides them with a variety of opportunities.

Play is the learning process in which the child is free to experiment, test new concepts, practice skills and social roles, and add to existing knowledge. Children, therefore, have the opportunity to develop new understanding about their world and the opportunity to expand their vocabularies through play (Vygotsky, 1962; Piaget, 1962; Tough, 1979). Children, through play, help one another master tasks they may not be able to grasp on their own (Bruner, 1982).

Play integrates the child's intellectual, social and emotional development. Through play, children are doing much more than expanding energy and having a good time, they develop socially, emotionally, physically and intellectually and learn many valuable life skills. Children enjoy play. Many adults, as well as the children themselves, do not realize the concepts learned through 'play'. Children, through their play, naturally investigate or explore concepts rather than being told they are to learn the

particular concept. In this way children can relate school knowledge to their activities outside the school, and therefore see their school as meaningful (Weininger, 1979; Dormoyer, 1981). The importance of this connection is emphasized by Shine and Goldman (1980):

> Anyone trained in education knows there is a difference between skills and the ability to use those skills. When skills are learned in isolation the connection between them and their use is tenuous. Creative teachers prefer to employ various instructional techniques so that children can integrate subject matter into their lives. Educational theorists have long held that repetitive drill in basic subject not connected to comprehension or composition is the least efficient way to educate and in some instances is seen counter-productive (p. 197-198).

As play allows for a learning experience with a de-emphasis on a goal, thereby reducing the excessive drive, children are allowed to learn skills more easily. Too much motivation arousal can interfere with learning. The Yerkes-Dodson Law, a well known rule in psychology of learning, states that "the more complex a skill is, the lower the optimum level of motivation required to learn it" (Bruner, 1975, p. 82). Reading, writing and arithmetic are very complex skills.

As play is the natural activity of children, it may be viewed as an appropriate and desirable pedagogical technique in Early Childhood Education. Goodland (1984) found "encouraging. . .the clear evidence that students respond positively when the desired pedagogical techniques are employed. It is encouraging that what is associated with student's satisfaction frequently is found also to be associated with student's performance" (p.127).

Educators must then question a child

> "trading the spaciousness of the kindergarten classroom - with it's wealth of interesting toys, props, and varied stimuli calculated to arouse his natural curiousity, for a grade one classroom - with desks which curtail freedom of movement and successfully eliminate large work areas. The kindergarten's wide variety of inviting stimuli are missing and so is the spontaneity and openness necessary for the realization of each child's potential through the natural medium of play" (Weininger, 1979, p. 12).

As emphasized by Weininger in the above quote, the importance of play as a pedagogical technique must be given serious consideration and further research to establish it's significance in Early Childhood Education.

CHAPTER 3

DESIGN OF THE STUDY

This chapter discusses the nature of the study, the sample, and the observation instrument. The pilot study and changes in the coding instrument are documented. Descriptions are given of the observation categories, the time sampling procedure, the duration of observations, and the interobserver reliability. A summary concludes the chapter.

NATURE OF THE STUDY

The study was conducted in two natural classroom settings of different environmental design in order to describe the occurrence of play in each setting. Precautionary measures were taken to avoid disrupting or influencing the normal flow of daily activities and occurrences. This type of study has been described as "non-contrived research" (Tunnell, 1977, p. 428) because the subject's experiences are assumed to continue as they would be regardless of the presence or absence of the researcher(s).

The study is descriptive in nature. Descriptions are based

on the coded observations of the behaviors of four target pupils in each of the two classroom settings.

THE SAMPLE

Two grade one classrooms were deemed appropriate for this study partly because of the researcher's interest and experience at this level and partly because of a recent interest in the upward extention of the Alberta Early Childhood Services philosophy of a play-based program into grade one classrooms.

The study was conducted with eight pupils, four in each of two grade one classrooms of given environmental designs, at approximately midpoint of the school year. These heterogeneous classrooms were in public schools in established districts of Edmonton. The schools were located in similar socioeconomic areas and had stable populations with the majority of pupils coming from two parent families residing in single family dwellings.

Selection of the Classrooms

The classrooms were selected by the researcher with assistance from the Early Childhood Consultant of the Edmonton Public School Board. The consultant was given environmental descriptors for two types of classrooms and was asked to recommend eight excellent teachers, four for each classroom type, with at least three years of teaching experience in their given environmental design. The

environmental descriptors for the two classrooms were based on Goodlad's findings (1984), the researcher's perceptions, and past classroom experiences as well as those of another researcher and two professors at the University of Alberta. The researcher randomly chose one teacher from each list and contacted those teachers by telephone to briefly describe the overall nature of the study. Both teachers expressed a sincere interest in participating in the study. The researcher visited their classrooms after school in order to share the environmental descriptors for that particular setting.

Each descriptor was discussed and modified, if necessary, to satisfy both the classroom teacher and the researcher as to it's accuracy in describing the classroom environment. The researcher then spent half a day in each classroom while classes were in session to ensure that the setting matched the descriptors in practice as well as in theory. Final descriptors for the two environmental designs were established as follows:

ENVIRONMENTAL DESIGN TYPE A

1. Pupils worked mainly at individual desks arranged in rows.
2. The teacher planned, delivered, and evaluated the program.
3. Teacher's reading and mathematics guidebooks were followed in the given sequence.
4. The pupils were mainly involved in small groups or whole class instruction.
5. The setting was a self-contained classroom (Appendix A).

ENVIRONMENTAL DESIGN TYPE B

1. Learning centres were utilized in the program.
2. Children, teachers, and parents were active participants in the planning, delivery, and evaluation of the program.
3. Teacher's reading and mathematics guidebooks were used as references.
4. Individualization of instruction was based on pupil's needs and allowed for individual choices.
5. The setting was a self-contained classroom (Appendix B).

Agreement to participate was obtained from the Edmonton Public School Board, the classroom teachers, and the principals in each school. A letter was prepared by the researcher to be sent to the parents of the pupils in the classroom of environmental design type A informing them of the researcher's presence and purpose in the classroom (Appendix C). The teacher in environmental design type B included this information in the weekly newsletter to the parents.

Selection of the Target Pupils

The possibility of the pupil's sex and the outgoing nature of the pupil having an impact on classroom play was considered important. Therefore, as classrooms vary greatly in their make up it was deemed appropriate for the purpose of this research that the selection of a more outgoing girl, a more outgoing boy, a less outgoing girl, and a less outgoing boy would provide an acceptable class representation.

The teachers were asked to assess and list separately more outgoing pupils and less outgoing pupils in the classroom. The researcher defined 'outgoing' and the teacher was to use that definition as a basis for selection. As the make up of groups may vary greatly, this was determined the most appropriate approach in the selection of target pupils.

During the observation period, prior to data collection, the researcher purposely selected one boy and one girl from each list as a representative of that group. The teachers were not informed of the target pupils selected.

THE OBSERVATION INSTRUMENT

A coded observational system was used to gather data on the four selected pupils in each classroom environment. The instrument was developed by the researcher as part of the study. The design of the coding system developed by the Beginning Teacher Evaluation Study (Marliare, Fisher, Filby, Dishaw, 1977) was adapted to meet the needs of this study. This system was considered appropriate as it facilitated the collection of information reflecting how much time was spent by individuals on the specific learning processes as well as allowing for rapid recording of the observations for each of the target pupils.

Observations were recorded using the time sampling procedure implemented by Smyth (1979). This was considered appropriate as the researcher was interested in the total amount of classroom time spent

in various processes by more than one pupil. The study proposed to observe four pupils in each classroom in a two minute observation cycle. During the pilot study changes were made to the proposed coding system.

PILOT STUDY

A two-phase pilot study was conducted with another researcher to alter and refine the proposed coding system in order to account for pupil use of classroom time; to experiment with the time-sampling procedure in terms of the length of the cycle; to standardize the moment of observation for two observers; and to establish interobserver reliability.

During the week of November 5, 1984 a grade one classroom of environmental design type A and a kindergarten classroom of environmental design type B were observed at a public school in Edmonton. General observations of the pupils were made to explore the feasibility of the variables outlined for the study. Several alterations, modifications, and additions were found necessary at that time.

The second phase of the pilot study was conducted in a kindergarten classroom as closely related to the descriptors indicated for the environmental design type B as possible. This classroom was considered appropriate for the final pilot study as Browne (1971) and Anderson (1978) maintained that it may be necessary to alter observational procedures because of the nature of interactions in

complex classrooms. This study provided the researcher with experience in the observational techniques, the opportunity to further refine the instrument, and the opportunity to establish interobserver agreement. A small amount of data was processed to determine if the coding system yielded the information sought.

Alterations and decisions made during the pilot study are described in further detail in the following sections.

CHANGES IN THE CODING SYSTEM

The researcher found it necessary to make several changes to the coding instrument in order to account for all time spent by the pupils in the two-phase pilot study.

Two categories 'child's wait time' and 'other activities' were added to account for time spent by pupils waiting in the learning environment; and to account for time spent out of the classroom such as going to the washroom or getting a drink as well as classroom activities that occur which were not part of the specific coding categories. Listening to an answer was added as a possible Pupil-Pupil Interaction to account for the time pupils spent listening to another pupil answer a teacher directed question.

A category to describe the instructional setting was added to give a more complete picture of the environment. Individual, small group, and large group columns were included on the coding instrument.

STANDARDIZATION OF THE MOMENT OF OBSERVATION

The coding instruments were pre-marked in 30-second divisions to ensure standardization of the moment of observation and of the interval between observations for each pupil. Each pupil was observed on a rotating basis for 30-second intervals. If pupil one was observed at 9:00;00, then pupil two would be at 9:00:30, pupil three at 9:01:00 and pupil four at 9:01:30. At 9:02:00 pupil one would be observed again and the rotation would continue.

The observer was required to rapidly shift focus among the time, the pupil, the classroom situation, and the coding sheet. Placing a digital watch clearly displaying minutes and seconds on the corner of the clipboard holding a coding instrument best accommodated this procedure.

CHANGES IN THE CODING PROCEDURE

During the refining of the coding instrument, a decision was made to use letter symbols rather than the previously used check mark. These letter symbols would indicate more clearly the nature of the interaction or transaction taking place. The letter symbols used were:

D: The pupil action was related to the present intended learning experience and had been initiated by the teacher.

N: The pupil action was not related to the present intended learning experience and had been initiated by the teacher.

d: The pupil action was related to the present intended learning experience and had been self initiated or initiated by another pupil.

n: The pupil action was not related to the present learning experience and had been self initiated or initiated by another pupil.

These letter symbols were used in conjunction with the observation categories. The following section describes the final observation categories in detail.

OBSERVATION CATEGORIES

During the pilot study the descriptions of the categories on the coding instrument were derived and refined.

Pupils are constantly engaged in some type of task or activity. Five main categories were determined during the pilot study:

1. pupil-teacher interaction
2. pupil-pupil interaction
3. pupil-material transaction
4. child's wait time to learning time
5. other activities that occur.

Two additional categories were included on the coding instrument:

6. instructional setting

7. comments.

1. Pupil-Teacher Interaction

The purpose of this category was to determine the relative amount of time spent and the nature of the interaction between the target pupils and the teacher in their natural classroom environment. The codings for these interactions are described below.

LG = Listening to the teacher speak to a group.

This category was coded when the target pupil was part of a group to which the teacher was speaking and appeared to be attending to what was said.

LI = Listening to the teacher speak to individual pupil.

This category was coded when the teacher spoke directly to the target pupil.

S = Listening to the teacher read/tell a story.

This category was coded when the teacher was sharing a story with the pupils. It was noted in the "Comments" portion of the coding sheet if the story was a personal experience or from a book.

D = Dialogue.

This category was coded when the target pupil was involved in a two way verbal interaction or sharing with the teacher.

C = Contributing to a teacher led group.

This category was coded when the target pupil made a contribution to a group the teacher lead.

A = Answer to a direct question.

This category was coded when the teacher or target pupil was responding to a question or providing requested information.

Q = Asking a question.

This category was coded when the teacher was directly asking the target pupil a question or target pupil was asking the teacher a question.

NV = Non-verbal cooperation.

This category was coded when the teacher and target pupil were involved in an activity where there was no verbal interaction.

2. Pupil-Pupil Interaction

The purpose of this category was to determine the relative amount of time spent and the nature of the interaction between the target pupils and other pupils in their natural classroom environment.

L = Listening to another pupil speak.

This category was coded when the target pupil appeared to be attending to what another pupil was saying.

LA = Listening to another pupil answer a teacher directed question.

This category was coded when the target pupil appeared to be attending to what another pupil was saying in response to a

teacher directed question.

D = Dialogue.

This category was coded when the target pupil was involved in a two-way verbal interaction or sharing with another pupil.

S = Sharing.

This category was coded when the target pupil was sharing information or an experience with another pupil and the interaction was one way. The target pupil was speaking while the other pupil was listening.

Y = Non-verbal demonstration.

This category was coded when a task or activity was demonstrated and there was no verbal interaction apparent.

X = Verbal directions or instructions.

This category was coded when verbal directions or instructions were given by the target pupil.

BX = Being directed or instructed.

This category was coded when the target pupil appeared to be directed by another pupil through verbal or non-verbal interaction.

Q = Asking a question.

This category was coded when the target pupil was asking another pupil a question.

NV = Non-verbal cooperation.

This category was coded when the target pupil was involved in a task or activity with one or more pupils and there was no apparent verbal interaction.

3. Pupil-Material Transaction

The purpose of this category was to determine the relative amount of time spent and the nature of the pupil's involvement with various materials in their natural classroom setting.

E = Experimentation.

This category was coded when the target pupil was involved with material that inspired thoughtful experimentation.

NE = Non-experimentation.

This category was coded when the target pupil was involved with material that lent itself only to perfunctory performance.

O = Open structure.

This category was coded when the target pupil was involved with open structured material.

C = Close structure.

This category was coded when the target pupil was involved with closed structured materials.

M = Manipulative material.

This category was coded when the target pupil was involved with manipulative materials.

P = Paper/Pencil activity

This category was coded when the target pupil was involved in a paper pencil activity or task.

B = Book

This category was coded when the target pupil was looking at or reading a book.

4. Child's Wait Time to Learning Time

This category was coded when the target pupil was waiting at any time during regular classroom hours. The reason for wait time was indicated in the "Comments" section of the coding instrument.

5. Other Activities

This category was coded when the engagement of the target pupil at the specific time of observation did not match any of the specific categories on the coding instrument. The engagement of the target pupil was noted in the "Comments" section of the coding instrument.

6. Instructional Setting

I = Individual

This category was checked when a pupil was working alone or on a one to one basis with the teacher or another pupil.

S = Small Group

This category was checked when a pupil was working in a small group situation which existed when less than half the class formed the instructional group.

L = Large Group

This category was checked when the majority of or all of the class was being instructed as a whole.

Coding Sheet # _____ Date _____ Observer _____ Lesson _____ Time _____

Pupil	Time	Pupil - Teacher								Pupil - Pupil								Pupil - Material						CWT	Other	Comments	Setting		
	Min Sec	LG	LI	S	D	C	A	Q	NV	L	LA	D	S	Y	X	BX	Q	NV	E	NE	O	C	M	P	B				I	S	L
	0 00																														
	2																														
	4																														
	6																														
	8																														
	0 30																														
	2 30																														
	4 30																														
	6 30																														
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	9																														
	1 30																														
	3 30																														
	5 30																														
	7 30																														
	9 30																														

Pupil-Teacher Interaction

- LG = Listening to teacher speak to a group
- LI = Listening to teacher speak to an individual
- S = Teacher reads/tells story
- D = Dialogue
- C = Contributing to teacher led group
- A = Answers question
- Q = Asks question
- NV = Non-verbal cooperation

Pupil-Pupil Interaction

- L = Listening to another pupil
- LA = Listening to another pupil answer
- D = Dialogue
- S = Sharing
- Y = Non-verbal demonstration
- X = Verbal directions/instructions
- BX = Being directed/instructed
- Q = Asking question
- NV = Non-verbal cooperation

Pupil-Material Transaction

- E = Experimentation
- NE = Non-experimentation
- O = Open structure
- C = Closed structure
- M = Manipulative material
- P = Paper/pencil activity
- B = Book

CWT = Child's Wait Time

Other = Other Activities

Setting

- I = Individual
- S = Small Group
- L = Large Group

FIGURE 1

7. Comments

This category allowed for any relevant behavior or setting occurrences not accounted for in the specific coding categories to be documented in brief explanatory notations. These documentations could assist in translation of the coded data.

A blank coding instrument appears in Figure 1 and samples of completed coding instruments appear in Appendix D.

OBSERVATION OF INDIVIDUAL PUPIL BEHAVIOR FOR THE STUDY

Two and one half days were spent in each of the two classrooms by the researcher prior to the commencement of the data gathering periods. This time allowed the researcher to become familiar with the classroom environment and provided an opportunity for the classroom teacher and pupils to become accustomed to the presence of the researcher. The researcher finalized the selection of target pupils to be observed and kept a logbook to record classroom procedures and informal discussions with the teacher.

Researchers have used observational periods ranging from one to seven days to obtain samples of classroom behavior (Smyth, 1979). Forness and Guthrie (1977) addressed the question of stability of pupil behavior in short-term classroom observation and found that data gathered in four consecutive days of observation was as stable as that collected over fifteen days. The researcher in this study spent Thursday and Friday of the week prior to data collection in general observation in each of the classrooms. The Monday morning of the week

of data collection was used to re-establish familiarity between the researcher and the class members. One week was allowed between the data collection periods in the two classrooms in order to give the researcher a rest from the strenuous concentration of recording data.

Observation periods of 30 minutes in duration were interspersed throughout each day of the five day period and were consciously selected to ensure that every aspect of the classroom program was observed. The teacher was not aware of the exact observation times, of the target pupils, or of the precise nature of the study. The data gathered yielded 540 minutes of observation for each of the eight target pupils.

To ensure continuous coding each target pupil was paired with another pupil selected from the same original list of more and less outgoing pupils. In the event that a target pupil was absent the paired pupil became the focus of observation. Observation of the paired pupil continued until such time as the reason for and likely duration of the absence was ascertained (Smyth, 1979). For the purpose of this study it was assumed that continued observation of the paired pupil was acceptable in the event that the target pupil did not return.

Two researchers used the same classrooms and target pupils to gather data for their individual studies. The environmental design type A classroom was observed from January 24 to February 1, 1985 while the environmental design type B classroom was observed from February 7 to 15, 1985. For the remainder of the study the environmental design type A classroom will be referred to as Study A while the environmental design type B classroom will be Study B. Data collection by two researchers in one classroom allowed for the

establishment of interobserver reliability which was utilized in the study. Observer training and reliability will be discussed in the next section.

INTEROBSERVER RELIABILITY

Interobserver reliability which was utilized in this study was considered by Kazdin (1977) to be an acceptable measure of reliability. Lack of reliability in observational research can arise when two measures of the same situation differ too much due to either the observed behaviors being extremely variable or because independent observers do not agree on what they observe to be taking place (McGaw, Wardrop and Bunda, 1972). By establishing interobserver agreement a researcher can determine the extent of the latter (Weick, 1968; Drew, 1980). Through the comparison of observational records of two or more observers who have coded the same classroom events during the same time interobserver agreement can be determined (Frick & Semmel, 1978).

During the two-phase pilot study two researchers independently recorded observations of four target pupils in a two minute cycle for up to 30 minute periods. These coded observations were then immediately compared and discrepancies discussed outside the actual classroom setting while the observations were still fresh in the researchers' memories (Marliave et al., 1977). Agreement exceeding 80 percent has been considered satisfactory in this type of classroom observation (Kazdin, 1977). The Arrington Reliability Formula (Fieffel & Lorge, 1950) was used in calculating the interobserver agreement:

$$\frac{2 \times \text{Total of Agreements}}{(2 \times \text{Total of Agreements}) + \text{Disagreements}}$$

On the Monday afternoon during the two weeks of the actual study the two researchers coded a 70 minute period of observation in each of the classrooms selected for the study. The results of the last 70 minute period of coding in each of the classroom settings selected for the study are reported in Appendix E. The results were considered highly satisfactory for this study considering the complexity of classroom observation.

SUMMARY

The focus of this study was on the ways four target pupils in each of two classrooms of different environmental design spent their classroom time at approximately midpoint of their grade one year. The study was descriptive in nature.

The two-phase pilot study provided the researcher the opportunity to revise and learn the proposed coding system, utilize and refine the time sampling procedure, define the observational categories, and establish interobserver reliability with another researcher.

The actual study took place during the last week in January, 1985 and the second week of February, 1985. The data collected yielded 540 minutes of observation for each of the eight target pupils.

CHAPTER 4

ANALYSIS AND DISCUSSION OF THE DATA

The data for this study were collected in two classrooms of different environmental design. Study A was conducted in a classroom where: the pupils worked at individual desks arranged in rows; the teacher planned, delivered, and evaluated the program; the teacher's reading and mathematics guide books were followed in a given sequence; the pupils were mainly involved in small groups or whole class instruction; and the setting was a self contained classroom. Study B was conducted in a classroom where: learning centres were utilized in the program; children, teachers, and parents were active participants in the planning, delivery, and evaluation of the program; the teacher's reading and mathematics guide books were used as references; individualization of instruction was based on pupil's needs and allowed for individual choices; and the setting was a self contained classroom.

The data were analyzed in terms of the four specific research questions which were structured around pupil-teacher interaction, pupil-pupil interaction, and pupil-material transaction. The findings are discussed with reference to these aspects of pupil engagement in the following manner:

Research Question 1 - the single occurrence of pupil-teacher interaction.

Research Question 2 - the single occurrence of pupil-pupil interaction.

Research Question 3 - the single occurrence of pupil-material transaction.

Research Question 4 - the single and simultaneous occurrences of the three aspects of pupil engagement.

A decision was made to differentiate between the occurrence of a single variable pupil engagement (i.e. pupil-teacher interaction) and the simultaneous occurrence of two or more variable pupil engagements (i.e. pupil-teacher interaction and pupil-material transaction). The chapter concludes with a discussion in response to the general research question dealing with the utilization of play in each classroom.

SPECIFIC RESEARCH QUESTIONS

Question One: Pupil-Teacher Interaction

What is the relative amount of classroom time spent and the nature of pupil-teacher interaction in the natural classroom setting?

STUDY A

Each of the pupils observed spent 32.2 to 34.8 percent of the total 540 minutes in interaction with the teacher (Appendix F).

A breakdown of the nature of the pupil-teacher interaction is presented in Table 1.

The target pupils spent 24.5 to 25.8 percent of the observed time listening to the teacher speak to a group. For all pupils this time consisted of such things as: direction for seatwork activity, instructions during a sequenced activity, praise, cautioning with regard to the noise level in the classroom, pupil and activity organization, homework, discussions, instructions for workbook corrections, dictation of spelling words, providing information, discussions of problems on the playground, and directions for lining up to leave the classroom.

Sarah, the more outgoing girl, was spoken to on an individual basis by the teacher more often than the other target pupils. Bob, the less outgoing boy, was not spoken to individually by the teacher during the 540 observed minutes. Sarah spent 3.3 percent of the observed time listening to the teacher speak to her individually while Joe and Elizabeth spent 1.8 and 1.1 percent respectively. These interactions included such things as instruction for error corrections, scolding, repeated directions, provision of additional information, and dialogue about the pupil's 'show and tell' item.

Listening to the teacher read a story made up 1.9 to 2.6 percent of the observed time. This time was spent with the total class gathered as a group listening to the teacher share a children's picture book.

Dialogue between the target pupil and the teacher consisted

TABLE 1

TABLE 1: TARGET PUPIL/TEACHER INTERACTION - STUDY A

Target Pupil	Nature of Activity	LG		LI		S		D		C		A		Q		NV		TOTAL	
		Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%
#1 - more	D	136	25.2	14	2.6	10	1.9			2	.4	4	.7			2	.4	168	31.2
outgoing	d							4	.7	6	1.1							10	1.8
girl	N			4	.7													4	.7
SARAH	n																		
	Total	136	25.2	18	3.3	10	1.9	4	.7	8	1.5	4	.7			2	.4	182	33.7
#2 - more	D	130	24.1	8	1.5	12	2.2	2	.4	4	.7	6	1.1	4	.7			166	30.7
outgoing	d							2	.4	14	2.6							16	3.0
boy	N	2	.4	2	.3													4	.7
JOE	n									2	.4							2	.4
	Total	132	24.5	10	1.8	12	2.2	4	.8	20	3.7	6	1.1	4	.7			188	34.8
#3 - less	D	132	24.5	6	1.1	12	2.2			2	.4	8	1.5			6	1.1	166	30.8
outgoing	d									4	.7							4	.7
girl	N	4	.7															4	.7
ELIZABETH	n																		
	Total	136	25.2	6	1.1	12	2.2			6	1.1	8	1.5			6	1.1	174	32.2
#4 - less	D	136	25.1			14	2.6	2	.4			6	1.1			8	1.5	166	30.7
outgoing	d									14	2.6							14	2.6
boy	N	4	.7															4	.7
ROB	n									2	.4							2	.4
	Total	140	25.8			14	2.6	2	.4	16	3.0	6	1.1			8	1.5	186	34.4

Nature of Activity

D: directly related to intended learning; teacher initiated
d: directly related to intended learning; self or other pupil initiated
N: not directly related to intended learning; teacher initiated
n: not directly related to intended learning; self or other pupil initiated

Target Pupil/Teacher Interaction

LG: listening to teacher speak to a group
LI: listening to teacher speak to an individual
S: teacher reads/tells story
D: dialogue
C: contributing to teacher led group
A: answers question
Q: asks question
NV: non-verbal cooperation

of 0 to .8 percent of observed classroom time. Sarah, the more outgoing girl, spent the most time in dialogue with the teacher while Elizabeth, the less outgoing girl, spent no time in dialogue with the teacher.

The target pupils contributed to a teacher led group from 1.1 to 3.7 percent of the pupil-teacher interaction time. The two boys observed contributed more than the two girls observed. These contributions, however, were initiated more often by the individual boys rather than by the teacher. Joe, the more outgoing boy contributed during 3.7 percent of the observed classroom time while Elizabeth, the less outgoing girl, contributed 1.1 percent of the time.

The four observed pupils spent .7 to 1.5 percent of their pupil-teacher interaction time answering teacher directed questions. Joe, the more outgoing boy, was the only observed pupil that directed a question to the teacher during the observed period.

Non-verbal cooperation between the individual target pupil and the teacher constituted 0 to 1.5 percent of the observed time. Bob, the less outgoing boy, spent the most time while Joe, the more outgoing boy, spent no time engaged in this manner. That is, as defined by this study, Joe was not observed involved in an activity with the teacher where there was no verbal interaction.

Nature of Activity. When the data were analyzed in terms of the nature of the activity, 88.3 to 95.4 percent of the pupil-teacher interaction was initiated by the teacher and was directly related to intended learning. Self initiation of the pupil-teacher interaction directly related to intended learning occurred 2.3 to 8.5 percent of

this interaction time. The two boys, Joe and Bob, initiated this type of interaction more often than the two girls. Very little pupil-teacher interaction was not directly related to intended learning. This interaction occurred 2.2 to 3.3 percent of the total pupil-teacher interaction time with the two boys being involved in more (3.3 percent each) of this type of interaction.

Setting. When the data were analyzed in terms of the setting, all of the observed pupil-teacher interaction (100 percent) occurred in a large group setting.

STUDY B

Each of the four target pupils in this classroom spent 29.6 to 34.4 percent of the 540 minutes observed engaged in interaction with the teacher or parent volunteer (Appendix F). As parent volunteers played a significant instruction role during one day of the observation period in this classroom and parental involvement occurred on a regular basis throughout the school year, a decision was made to include them as part of the data collection.

A breakdown of the nature of the pupil-teacher interaction for Study B is present in Table 2. The four target pupils spent 23.7 to 28.2 percent of the observed classroom time listening to the teacher speak to a group. For all pupils this time consisted of such things as: directions for seatwork activity, praise, pupil and activity organization, instructions for workbook activities, a calling together of all pupils, providing information, request for attention to a specific area of the classroom, discussions with regard to

classroom activities and pupil's individual interests, and the teacher sharing her feelings and ideas as a member of the group.

The teacher spoke to the target pupils on an individual basis from .8 to 1.5 percent of the total pupil-teacher interaction time. Michael, the more outgoing boy, was spoken to individually most often while Jane, the less outgoing girl, was spoken to least often. These interactions included such things as drawing the pupil's attention to a group sharing, teacher response to a question posed by the pupil, scolding with regard to behavior, and directions or instructions.

Listening to the teacher read a story took place during 0 to .4 percent of the observed time.

Dialogue between the target pupil and the teacher constituted 0 to 2.1 percent of the observed time. Ann, the more outgoing girl, and Brandon, the more outgoing boy, spent the most time (2.1 and 1.5 percent respectively) engaged in this type of interaction. It is important to note that most of this interaction had been initiated by the pupil.

The target pupils contributed to a teacher led group from 1.1 to 3.0 percent of the observed time. Brandon, the more outgoing boy, contributed the least and Jane, the less outgoing girl, contributed the most. A large majority of these contributions however, were initiated by the teacher.

The four observed pupils spent 0 to 1.5 percent of the observed time answering teacher directed questions. Ann, the more outgoing girl, spent more time answering the teacher's questions than the other three pupils. Michael, the less outgoing boy, was not

TABLE 2: TARGET PUPIL/TEACHER INTERACTION - STUDY B

Target Pupil	Nature of Activity	LG		LI		S		D		C		A		Q		NV		TOTAL	
		Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%
#5 - more outgoing girl KAY	D	130	24.1	6	1			2	.3	14	2.6	6	1.1			2	.4	160	29.6
	d							10	1.8	2	.4	2	.4	6	1.1			20	3.7
	H	6	1.1															6	1.1
	n																		
	Total	136	25.2	6	1.1			12	2.1	16	3.0	8	1.5	6	1.1	2	.4	186	34.4
#6 - more outgoing boy BRANDON	D	130	24.1	6	1.1			2	.4	6	1.1	4	.7					148	27.4
	d							6	1.1					2	.4			8	1.5
	H			2	.4													2	.4
	n													2	.3			2	.3
	Total	130	24.1	8	1.5			8	1.5	6	1.1	4	.7	4	.7			160	29.6
#7 - less outgoing girl JANE	D	128	23.7	2	.4	2	.4			10	1.8	4	.7			2	.4	148	27.4
	d			2	.4					8	1.4			2	.4			12	2.2
	H																		
	n																		
	Total	128	23.7	4	.8	2	.4			18	3.2	4	.7	2	.4	2	.4	160	29.6
#8 - less outgoing boy MICHAEL	D	152	28.2	6	1.1	2	.4			6	1.1					4	.7	170	31.5
	d							2	.4	8	1.4							10	1.8
	H																		
	n																		
	Total	152	28.2	6	1.1	2	.4	2	.4	14	2.5					4	.7	180	33.3

Nature of Activity

D: directly related to intended learning; teacher initiated
d: directly related to intended learning; self or other pupil initiated
H: not directly related to intended learning; teacher initiated
n: not directly related to intended learning; self or other pupil initiated

Target Pupil/Teacher Interaction

LG: listening to teacher speak to a group
LI: listening to teacher speak to an individual
S: teacher reads/tells story
D: dialogue
C: contributing to teacher led group
A: answers question
Q: asks question
NV: non-verbal cooperation

TABLE 2

engaged in this interaction during the period observed.

All of the target pupils, with the exception of Michael (the less outgoing boy) directed a question to the teacher during the observed period. Ann, the more outgoing girl, spent the most time in this interaction (1.1 percent).

Non-verbal cooperation between the individual target pupil and the teacher constituted 0 to .7 percent of the observed time. Michael, the less outgoing boy, spent the most time while Brandon, the more outgoing boy, spent no time engaged in this manner.

Nature of activity. When the data were analyzed in terms of the nature of the activity, 86.0 to 94.4 percent of the pupil-teacher interaction was initiated by the teacher and was directly related to intended learning. Pupil initiation of the pupil-teacher interaction directly related to intended learning occurred 5.0 to 10.8 percent of the interaction time. Ann, the more outgoing girl, initiated this type of interaction more often than the other three target pupils. A very small percentage of the observed time (0 to 3.2) was not directly related to intended learning. Ann and Brandon (the more outgoing pupils) were involved in interaction with the teacher that was not directly related to intended learning, while Jane and Michael (the less outgoing pupils) were not involved in this form of interaction.

Setting. When the data were analyzed in terms of the setting, 1.2 percent of the total pupil teacher interaction time was spent on an individual basis, 13.7 percent in a small group setting, and 85.1 percent in a large group setting. The largest majority of time was therefore spent in the large group setting.

Question Two: Pupil-Pupil Interaction

What is the relative amount of classroom time spent and the nature of pupil-pupil interaction in the natural classroom setting?

STUDY A

The pupils observed spent 8.2 to 13.0 percent of the total 540 minutes observed in pupil-pupil interaction (Appendix F). Elizabeth, the less outgoing girl, emerged as the pupil who spent the most time engaged in pupil-pupil interaction while Bob, the less outgoing boy, spent the least amount of time.

A breakdown of the nature of the pupil-pupil interaction is presented in Table 3. The four pupils observed spent 1.1 to 3.0 percent of the observed time listening to another pupil speak. Bob, the less outgoing boy, spent the most time while Joe, the more outgoing boy spent the least time listening to another pupil speak. Almost all of this interaction was initiated by the teacher and included such things as show and tell, sharing of a personal experience, and reading from a work-sheet or reader.

The target pupils spent 3.3 to 6.0 percent of the observed time listening to another pupil respond to a teacher directed question. These responses were almost all teacher initiated, directly related to the intended learning, and occurred in a large group setting.

The two girls observed spent more time in dialogue (2.6

percent each) with another pupil than the two boys observed (1.5 percent each). Sarah, the more outgoing girl, spent most of this time in self or other pupil dialogue which was not directly related to intended learning. All dialogue involving the other three target pupils was directly related to intended learning.

Sharing between one of the target pupils and another pupil occurred 0 to 1.5 percent of the observed time. Sarah, the more outgoing girl, was involved in this interaction more often than the other three pupils. Bob, the less outgoing boy, was not involved in this interaction during the observed period.

Non-verbal demonstration on the part of a target pupil was not observed during the time spent in this classroom.

The two boys, Joe and Bob, were observed giving verbal directions or instruction to another pupil 1.1 and .8 percent of the time respectively. The two girls were not observed giving verbal directions or instruction.

Of the four target pupils, Joe (the more outgoing boy) was the only pupil observed receiving directions or instructions from another pupil.

The target pupils were not often observed asking their peers a question. Sarah, the more outgoing girl, and Bob, the less outgoing boy, were not observed in this interaction during the 540 minutes. Both Joe and Elizabeth spent .4 percent of the observed time engaged in this interaction.

Non-verbal cooperation between the target pupil and another pupil occurred 0 to .6 percent of the observed time. Sarah, the more

TABLE 3

TABLE 3: TARGET PUPIL/OTHER PUPIL INTERACTION - STUDY A

Target Pupil	Nature of Activity	L		LA		D		S		Y		X		BX		Q		NV		TOTAL	
		Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%
#1 - more	D	10	1.8	20	3.7	2	.4	4	.7											36	6.6
outgoing	d							2	.4											2	.4
girl	N			2	.4															2	.4
SARAH	n	2	.4			12	2.2	2	.4											16	3.0
	Total	12	2.2	22	4.1	14	2.6	8	1.5											56	10.4
#2 - more	D	6	1.1	24	4.3	6	1.1							2	.4			2	.4	40	7.3
outgoing	d					2	.4	2	.4			4	.7			2	.4			10	1.9
boy	N																				
JOE	n											2	.4							2	.4
	Total	6	1.1	24	4.3	8	1.5	2	.4			6	1.1	2	.4	2	.4	2	.4	52	9.6
#3 - less	D	12	2.3	30	5.6	4	.8											4	.6	50	9.3
outgoing	d	4	.7			6	1.1													10	1.8
girl	N																				
ELIZABETH	n			2	.4	4	.7	2	.4							2	.4			10	1.9
	Total	16	3.0	32	6.0	14	2.6	2	.4							2	.4	4	.6	70	13.0
#4 - less	D	12	2.2	18	3.3	2	.4											2	.4	34	6.3
outgoing	d					2	.4					2	.4							4	.8
boy	N																				
BOB	n					4	.7					2	.4							6	1.1
	Total	12	2.2	18	3.3	8	1.5					4	.8					2	.4	44	8.2

Nature of Activity

D: directly related to intended learning; teacher initiated
d: directly related to intended learning; self or other pupil initiated
N: not directly related to intended learning; teacher initiated
n: not directly related to intended learning; self or other pupil initiated

Target Pupil/Teacher Interaction

L : listening to another pupil
LA: listening to another pupil answer
D: dialogue
S: sharing
Y: non-verbal demonstration
X: verbal directions/instructions
BX: being directed/instructed
Q: asking question
NV: non verbal cooperation

outgoing girl, was not observed in this interaction while Elizabeth, the less outgoing girl, was observed most often engaged in this way.

Nature of Activity. When the data were analyzed in terms of the nature of the activity, 64.3 to 77.3 percent of the pupil-pupil interaction was teacher initiated and directly related to intended learning. Self or other pupil initiated pupil-pupil interaction directly related to intended learning occurred 3.6 to 19.2 percent of the total time. Sarah, the more outgoing girl, was least often involved (3.6 percent) in this interaction while Joe, the more outgoing boy, was most often involved.

Teacher initiated pupil-pupil interaction not directly related to intended learning occurred very seldom (0 to 3.6 percent) while self or other pupil initiated pupil-pupil interaction not directly related to intended learning occurred more often (3.8 to 28.6 percent). Sarah, the more outgoing girl, emerged as the target pupil who spent the most time in self initiated interaction not directly related to the intended learning.

Setting. When the data were analyzed in terms of the setting, 24.3 percent of the total pupil-pupil interaction time was spent on an individual basis. It is important to note that a large amount of this interaction was self or other pupil initiated and not directly related to intended learning. The remaining 75.7 percent of pupil-pupil interaction was observed in a large group setting. No pupil-pupil interaction was observed in a small group setting.

STUDY B

The four target pupils in this classroom spent 16.7 to 24.5 percent of the total 540 minutes observed in pupil-pupil interaction. (See Appendix F for a summary of the 540 minutes observed.) Brandon, the more outgoing boy, and Jane, the less outgoing girl, spent the most time, 24.5 percent each, engaged in interaction with another pupil. Ann, the more outgoing girl, spent the least amount of time engaged in this manner.

An overview of the nature of pupil-pupil interaction is presented in Table 4. The target pupil spent 4.8 to 10.0 of their observed time listening to another pupil speak. Jane, the less outgoing girl, spent the most time (10.0 percent) engaged in this interaction. It is however important to note that she spent 5.2 percent of this interaction time in self or other pupil initiated interaction with another pupil. This was substantially more time in self or other pupil initiated interaction than the other three target pupils. The pupil-pupil interaction observed was largely directly related to intended learning and initiated by the teacher. This pupil-pupil interaction included such things as show and share, interaction at a learning centre, and relating personal experiences and feelings.

A range of 3.0 to 4.8 percent of the observed time was spent listening to another pupil respond to a teacher directed question. These responses were almost all teacher initiated and directly related

to the intended learning. The interaction took place in small groups and large group settings.

The amount of time spent in dialogue with another pupil ranged from 2.7 to 4.7 percent of the observed time. Brandon, the more outgoing boy, spent the most time while Michael, the less outgoing boy, spent the least time engaged in this interaction. For all of the target pupils a large amount of this dialogue was self or other pupil initiated and directly related to intended learning. The four pupils were all involved in interaction that was self or other pupil initiated and not directly related to the intended learning. Brandon, the more outgoing boy, spent the most time while Michael, the less outgoing boy, spent the least time engaged in this manner.

Sharing between one of the target pupils and another pupil occurred .4 to 1.9 percent of the observed time. The two boys, Brandon and Michael, spent the most time sharing (1.9 and 1.4 percent respectively). The largest amount of observed sharing was self or other pupil initiated and directly related to the intended learning.

Brandon, the more outgoing boy, was the only target pupil observed in non-verbal demonstration. He spent .8 percent of the 540 minutes engaged in this way.

All four target pupils were observed giving verbal directions to another pupil. This ranged from .8 to 1.4 percent of the observed time. The two girls spent the most time engaged in this interaction.

While Jane, the less outgoing girl, was observed giving directions she was not observed receiving directions or instructions from another pupil. The other three target pupils spent .8 percent of

TABLE 4

TABLE 4: TARGET PUPIL/OTHER PUPIL INTERACTION - STUDY B

Target Pupil	Nature of Activity	L		LA		D		S		Y		X		BX		Q		NV		TOTAL	
		Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%
#5 - more	D	22	4.0	14	2.6	2	.4	2	.4							2	.3	2	.4	44	8.1
outgoing	d	12	2.2	2	.4	10	1.8					6	1.1	4	.8			2	.4	36	6.7
girl	N																				
ANN	n					8	1.5											2	.4	10	1.9
	Total	34	6.2	16	3.0	20	3.7	2	.4			6	1.1	4	.8	2	.3	6	1.2	90	16.7
#6 - more	D	22	4.0	18	3.3	2	.4									2	.4	4	.8	48	8.9
outgoing	d	20	3.7			14	2.5	8	1.5	2	.4	4	.8	2	.4	2	.4	12	2.2	64	11.9
boy	N																				
BRANDON	n	2	.4			10	1.8	2	.4	2	.4			2	.4			2	.3	20	3.7
	Total	44	8.1	18	3.3	26	4.7	10	1.9	4	.8	4	.8	4	.8	4	.8	18	3.3	132	24.5
#7 - less	D	26	4.8	24	4.4	2	.4											4	.8	56	10.4
outgoing	d	28	5.2	2	.4	12	2.2	4	.8			8	1.4					16	3.0	70	13.0
girl	N																				
JANE	n					6	1.1													6	1.1
	Total	54	10.0	26	4.8	20	3.7	4	.8			8	1.4					20	3.8	132	24.5
#8 - less	D	18	3.3	24	4.4	2	.4													44	8.1
outgoing	d	8	1.5	2	.4	10	1.8	8	1.4			4	.8	4	.8	2	.4	20	3.7	58	10.8
boy	N																				
MICHAEL	n					2	.4													2	.4
	Total	26	4.8	26	4.8	14	2.6	8	1.4			4	.8	4	.8	2	.4	20	3.7	104	19.3

Nature of Activity

D: directly related to intended learning; teacher initiated
d: directly related to intended learning; self or other pupil initiated
N: not directly related to intended learning; teacher initiated
n: not directly related to intended learning; self or other pupil initiated

Target Pupil/Teacher Interaction

L : listening to another pupil
LA: listening to another pupil answer
D: dialogue
S: sharing
Y: non-verbal demonstration
X: verbal directions/instructions
BX: being directed/instructed
Q: asking question
NV: non-verbal cooperation

the observed time receiving directors or instructions.

The target pupils were not often observed asking their peers a question. Jane, the less outgoing girl, was not observed during the 540 minutes in this interaction with a peer. The other target pupils spent .3 to .8 percent of the observed time asking their peers questions.

Non-verbal cooperation between the target pupil and another pupil occurred 1.2 to 3.8 percent of the observed time. Jane, the less outgoing girl, and Michael, the less outgoing boy, spent the most time in this interaction while Ann, the more outgoing girl, spent the least time. A large amount of the interaction was self or other pupil initiated and directly related to the intended learning.

Nature of Activity. When the data were analyzed in terms of the nature of the activity, 36.4 to 48.9 percent of the pupil-pupil interaction was teacher initiated and directly related to the intended learning. Self initiated or other pupil initiated pupil-pupil interaction directly related to the intended learning occurred 40.0 to 55.8 percent of the time. Michael, the less outgoing boy, was involved most often in this interaction, while Ann, the more outgoing girl, was involved least often.

Teacher initiated pupil-pupil interaction not directly related to the intended learning was not observed in this classroom. Self or other pupil initiated pupil-pupil interaction not directly related to intended learning was observed 1.9 to 15.1 percent of the time. Michael, the less outgoing boy, was involved in this interaction less often, while Brandon, the more outgoing boy, was

observed more often than the other target pupils.

Setting. When the data were analyzed in terms of the setting, 3.1 percent of the total pupil-pupil interaction time was spent on an individual basis, 24.9 percent in a small group setting, and 72.0 percent in a large group setting. Pupil-pupil interaction that was self or other pupil initiated and not directly related to learning occurred in all three settings.

Question Three: Pupil-Material Transaction

What is the relative amount of classroom time spent and the nature of pupil-material transaction in the natural classroom setting?

STUDY A

The target pupils spent 13.0 to 22.6 percent of the 540 minutes observed in some type of pupil-material transaction. (See Appendix F for an overview of the 540 minutes observed in this classroom.) Bob, the less outgoing boy, spent the most time (22.6 percent) engaged in pupil-material transaction while Sarah, the more outgoing girl, spent the least amount of time (13.0 percent).

A summary of the nature of the pupil-material transaction is presented in Table 5. The material transactions observed in this classroom were:

a) manipulative material with open structure and experimentation.

TABLE 5: TARGET PUPIL/MATERIAL TRANSACTION STUDY A

Target Pupil	Nature of Activity	E+O+M		E+O+P		NE+C+M		NE+C+P		E+C+M		NE+O+P		B		TOTAL	
		Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%
#1 - more outgoing girl SARAH	D	2	.4	2	.4			50	9.2	2	.4			2	.4	58	10.8
	d																
	M																
	n	8	.5	2	.3			2	.4							12	2.2
	Total	10	1.9	4	.7			52	9.6	2	.4			2	.4	70	13.0
#2 - more outgoing boy JOE	D	4	.7					56	10.4	4	.7	6	1.1	2	.4	72	13.3
	d																
	M																
	n	12	2.3													12	2.3
	Total	16	3.0					56	10.4	4	.7	6	1.1	2	.4	84	15.6
#3 - less outgoing girl ELIZABETH	D	6	1.1	2	.3	8	1.5	54	10.0			2	.4	2	.3	74	13.6
	d																
	M																
	n	2	.4													2	.4
	Total	8	1.5	2	.3	8	1.5	54	10.0			2	.4	2	.3	76	14.0
#4 - less outgoing boy BOB	D			4	.7	12	2.3	82	15.2			14	2.6	4	.7	116	21.5
	d																
	M																
	n	4	.7					2	.4							6	1.1
	Total	4	.7	4	.7	12	2.3	84	15.6			14	2.6	4	.7	122	22.6

Nature of Activity

D: directly related to intended learning; teacher initiated
d: directly related to intended learning; self or other pupil initiated
N: not directly related to intended learning; teacher initiated
n: not directly related to intended learning; self or other pupil initiated

Target Pupil/Teacher Interaction

E : experimentation
NE: non-experimentation
O: open structure
C: closed structure
M: manipulative material
P: paper/pencil material
B: book

The four target pupils spent .7 to 3.0 percent of the 540 minutes observed in this pupil-material transaction. Joe, the more outgoing boy, spent the least time of the four target pupils in this engagement. It is important to note that a large portion of this transaction was self or other pupil initiated and not directly related to the intended learning. This type of material transaction included movement to music, actions involving items from the pupil's desk, moving chalkbrush about blackboard edge, folding paper shapes, a game involving eraser and pencils (resembled a hockey game), and cutting paper shapes.

b) paper/pencil activity with open structure and experimentation.

The target pupils spent 0 to .7 percent of the 540 observed minutes engaged in this pupil-material transaction. This type of transaction occurred during an art period where the pupils were involved in drawing a face for the jack-in-the-box being constructed.

c) manipulative with closed structure and non-experimentation.

The four pupils engaged in this transaction 0 to 2.3 percent of the observed time. During the observed time the two more outgoing students were observed in this transaction while the two less outgoing students were not. It involved such things as cutting and pasting clock parts, and cutting

and pasting pictures into a sequential order.

d) paper/pencil activity with closed structure and non-experimentation.

This engagement constituted the largest portion of pupil-material transaction for all four of the target pupils making up to 9.6 to 15.6 percent of the 540 minutes observed. Bob, the less outgoing boy, spent more time engaged in this manner while Sarah, the more outgoing girl, spent less time than the other target pupils. This transaction was largely teacher initiated and directly related to the intended learning. This engagement included workbook pages, sheetwork, printing from the chalkboard, and printing dictated words.

e) manipulative with closed structure and experimentation.

The target pupils spent 0 to .7 percent of the observed time engaged in this form of transaction. Elizabeth and Bob were not observed during the 540 minutes engaged in this category of transaction. Joe, the more outgoing boy, was observed most often engaged in this activity.

f) paper/pencil activity with open structure and non-experimentation.

The target pupils spent 0 to 2.6 percent of the observed time in of transaction. Bob, the less outgoing boy, was the

target pupil most often observed in transaction. This engagement consisted largely of creative writing.

g) book.

As the students in this classroom spent a considerable amount of their time reading from reproduced sheets a decision was made to include these sheets in this category. The four target pupils spent .3 to .7 percent of the observed time involved with a book or short story. This time was all teacher initiated and directly related to the intended learning.

Nature of Activity. When the data were analyzed in terms of the nature of the activity, 82.9 to 97.4 percent of the pupil-material transaction was teacher initiated and directly related to intended learning. Elizabeth, the less outgoing girl, spent the most time engaged in this nature of activity while Sarah, the more outgoing girl, spent the least amount of time.

Self or other pupil initiated transaction not directly related to intended learning made up the remainder of the observed time ranging from 2.6 to 17.1 percent. Sarah, the more outgoing girl, and Joe, the more outgoing boy, spent the most time engaged in transaction spending 17.1 and 14.3 percent respectively.

Setting. When the data were analyzed in terms of the setting, 100 percent of the transactions were observed in a large group setting.

STUDY B

The four target pupils in this classroom spent 15.9 to 19.6 percent of the 540 minutes observed in pupil-material transaction (Appendix F). The two boys, Brandon and Michael, spent the most time (19.6 percent) engaged in material transaction.

A summary of the nature of the pupil-material transaction is presented in Table 6. The material transactions observed in this classroom were:

a) manipulative material with open structure and experimentation.

The four target pupils spent .7 to 1.9 percent of the 540 minutes observed in this type of engagement. Brandon, the most outgoing boy, spent the most time while Michael, the less outgoing boy, spent the least time engaged in this form of material transaction. The material transaction included sand play, block play, activities with a skipping rope and hoop, making a valentine, decorating a valentine holder, shuffling cards, and activities with a doll and toy bunny.

b) paper/pencil activity with open structure and experimentation.

The target pupils spent 2.2 to 4.1 percent of the observed 540 minutes engaged in this material transaction with the largest portion being teacher initiated and directly related to intended learning. It included such

TABLE 6

TABLE 6: TARGET PUPIL/MATERIAL TRANSACTION STUDY 8

Target Pupil	Nature of Activity	E+O+M		E+O+P		NE+C+M		NE+C+P		E+C+M		NE+O+P		8		TOTAL	
		Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%	Mins.	%
P5 - more	D	2	.4	22	4.1	12	2.2	18	3.3					4	.7	58	10.7
outgoing	d					8	1.5	2	.4					8	1.5	18	3.4
girl	M																
JANE	n	6	1.1			4	.7									10	1.8
	Total	8	1.5	22	4.1	24	4.4	20	3.7					12	2.2	86	15.9
P6 - more	D	2	.4	12	2.2	34	6.3	36	6.7					2	.4	86	16.0
outgoing	d					4	.7	4	.7							8	1.4
boy	M																
BRABBON	n	8	1.5			4	.7									12	2.2
	Total	10	1.9	12	2.2	42	7.7	40	7.4					2	.4	106	19.6
P7 - less	D	2	.3	10	1.9	10	1.9	34	6.2							56	10.3
outgoing	d	2	.4					20	3.7					2	.4	24	4.5
girl	M																
JANE	n	2	.4	2	.4											4	.8
	Total	6	1.1	12	2.3	10	1.9	54	9.9					2	.4	84	15.6
P8 - less	D	2	.4	22	4.1	14	2.6	22	4.1					4	.7	64	11.9
outgoing	d	2	.3			14	2.6	24	4.4					2	.4	42	7.7
boy	M																
MICHAEL	n																
	Total	4	.7	22	4.1	28	5.2	46	8.5					6	1.1	106	19.6

Nature of Activity

D: directly related to intended learning; teacher initiated
d: directly related to intended learning; self or other pupil initiated
8: not directly related to intended learning; teacher initiated
n: not directly related to intended learning; self or other pupil initiated

Target Pupil/Teacher Interaction

E : experimentation
NE: non-experimentation
O: open structure
C: closed structure
M: manipulative material
P: paper/pencil material
B: book

things as drawing pictures/illustrations and drawing valentine decorations. Ann, the more outgoing girl, and Michael, the less outgoing boy, spent the most time engaged in this type of activity.

c) manipulative with closed structure and non-experimentation.

The four target pupils engaged in this transaction 1.9 to 7.7 percent of the observed 540 minutes. Brandon, the more outgoing boy, was most often observed while Jane, the less outgoing girl, was least often observed in this type of activity. Most of this material transaction was teacher initiated and directly related to intended learning. Ann, the more outgoing girl, and Michael, the less outgoing boy, were engaged in a fair amount of self or other pupil initiated activity directly related to learning. For all pupils this category of pupil-material transaction included card games, setting up climbing apparatus in the gym, floor hockey game, puzzles, cutting activity, math and language board games, computer activity, and valentine activities.

d) paper/pencil activity with closed structure and non-experimentation.

This engagement was observed 3.7 to 10.0 percent of the 540 minutes. Jane, the less outgoing girl, and Michael, the less outgoing boy, were most often observed engaged in this manner (10.0 and 8.5 percent respectively). Both of these

pupils engaged in a large amount of self or other initiated activity as well as teacher initiated activity directly related to the intended learning. Brandon and Ann were most often engaged in teacher initiated activity directly related to learning. This engagement included workbook pages and printing from the chalkboard.

e) manipulative with closed structure and experimentation.

During the 540 minutes none of the target pupils were observed in this nature of activity.

f) paper/pencil activity with open structure and non-experimentation.

During the 540 minutes none of the target pupils were observed in this nature of activity.

g) book.

The target pupils spent .4 to 2.2 percent of the observed time with a book. Ann, the more outgoing girl, spent the most time while Brandon and Jane spent the least time engaged in this nature of pupil-material transaction.

Nature of Activity. When the data were analyzed in terms of the nature of the activity, 60.4 to 81.1 percent of the pupil-material transaction was initiated by the teacher and directly related to learning. Brandon, the more outgoing boy, spent the most time engaged

in this type of activity while Michael, the less outgoing boy, spent the least amount of time.

Self or other pupil initiated transaction directly related to learning was observed 7.6 to 39.6 percent of the 540 minutes. Michael was most often engaged and Brandon least often engaged in this nature of activity.

Self or other pupil initiated activity not directly related to learning was observed 0 to 11.6 percent of the 540 minutes. Ann and Brandon were most often observed in this type of activity, 11.6 and 11.3 percent respectively. Michael was not observed in this nature of activity.

Setting. When the data were analyzed in terms of setting, 7.3 percent of the transactions occurred on an individual basis, 23.6 percent in a small group setting and 69.1 percent in a large group setting.

Question Four: Effect of Given Environment

> What is the effect of the given environment on the three processes related to learning: pupil-teacher interaction, pupil-pupil interaction and pupil-material transaction?

STUDY A

The distribution of each target pupil's engagement during the time observed is presented in the bar diagrams of Figure 2. The

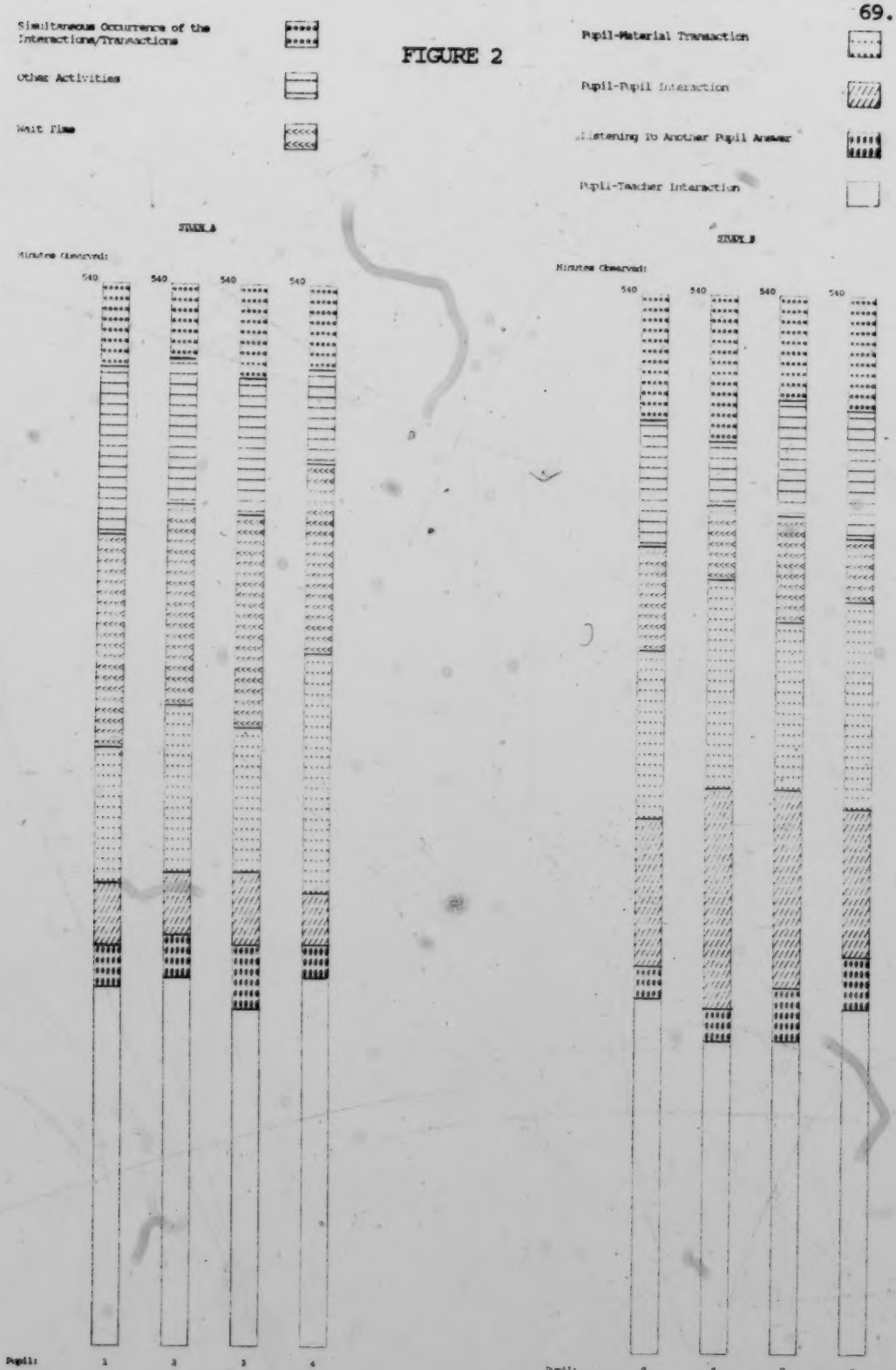
four target pupils spent 64 to 73 percent of the observed time engaged in one of the three interactions/transaction related to learning. Bob, the less outgoing boy, spent the most time while Sarah, the more outgoing girl, spent the least time in these engagements.

Pupil-Teacher Interaction. The pupils were observed in pupil-teacher interaction more often than any of the other categories. They spent 32 to 35 percent of the observed time in this engagement with the two boys spending the most time and Elizabeth, the less outgoing girl, spending the least time.

A breakdown of the pupil-teacher interaction in this classroom (see Table 1) revealed the largest percent of all pupil-teacher interaction was in listening to the teacher speak to a group. The four pupils spent approximately 70 to 78 percent of their pupil-teacher interaction time in this form of engagement. The least time was spent by all students in asking the teacher a question, approximately 0 to 2 percent. The observed pupil-teacher interaction was most often initiated by the teacher, directly related to the intended learning, and mainly consisted of the pupils listening to the teacher speak to the total class.

Pupil-Pupil Interaction. (NOTE: A decision was made a this stage of the data analysis to set the category of listening to another pupil answer a teacher directed question separate and apart from the remaining categories of pupil-pupil interaction. It was determined that this interaction was of a different essence than the other forms of pupil-pupil interaction and was more likely some combination of pupil-teacher interaction, pupil-pupil interaction and wait time). The

FIGURE 2


Simultaneous Occurrence of the Interactions/Transactions
Other Activities
Wait Time
Pupil-Material Transaction
Pupil-Pupil Interaction
Listening To Another Pupil Answer
Pupil-Teacher Interaction
STARK A
STARK B
Minutes Observed:
540
Pupil:
1
2
3
4
5
6
7
8

pupils were observed in pupil-pupil interaction less often than any of the other categories. They spent 5 to 7 percent of the observed time in this engagement with Elizabeth, the less outgoing girl, spending the most time and Bob, the less outgoing boy, spending the least time. A break down of pupil-pupil interaction (see Table 3) revealed the largest percentage of all pupil-pupil interaction was spent in listening to another pupil or in dialogue with another pupil. The target pupils were not observed in non-verbal demonstration. That is, as defined by this study, they were not observed demonstrating a task or activity where there was no verbal interaction apparent. The observed pupil-pupil interaction was most often initiated by the teacher and directly related to the intended learning. The pupils were observed listening to another pupil answer a teacher directed question 3 to 6 percent of the observed time. This engagement was almost always (approximately 99%) initiated by the teacher and directly related to the intended learning (approximately 99%).

Pupil-Material Transaction. The target pupils were engaged in pupil-material transaction 13 to 23 percent of the observed time. Bob, the less outgoing boy, spent the most time while Sarah, the more outgoing girl, spent the least time engaged in this manner. A break down of pupil-material transaction (see Table 5) revealed the largest portion of all pupil-material transaction was spent in non-experimental, closed structure, paper/pencil activity. The four target pupils spent approximately 67 to 74 percent of their pupil-material transaction in this form of engagement. It is

interesting to note the limited amount of time, 2 to 3 percent, the target pupils were observed with a book. The pupils were observed 73 to 83 percent of the pupil-material transaction time engaged in a paper/pencil activity and 13 to 24 percent with a manipulative activity. The observed pupil-material transaction was most often initiated by the teacher (approximately 83 to 97 percent), directly related to the intended learning (approximately 83 to 97 percent) and consisted mainly of a non-experimental, closed structure, paper/pencil activity.

Pupil-Teacher Interaction and Pupil-Material Transaction. These two processes occurred simultaneously 2 to 5 percent of the observed time. The nature of the engagement for all four target pupils was mainly (over 90%) teacher initiated, directly related to the intended learning and consisted of the teacher speaking to the total class with regard to the non-experimental, closed structure paper/pencil activity in which the pupils were engaged. This paper/pencil activity consisted of a duplicated worksheet, a workbook page or word dictation.

Pupil-Teacher Interaction and Pupil-Pupil Interaction. These two processes occurred simultaneously 0 to 1 percent of the observed time. This engagement occurred in a large group setting where the teacher and another pupil discussed the pupil's recent holiday in Vancouver.

Pupil-Pupil Interaction and Pupil-Material Transaction. These two processes occurred simultaneously 1 to 5 percent of the observed time. The nature of this engagement for all four target

pupils was mainly (over 95 percent) teacher initiated, directly related to the intended learning, and occured in a large group setting. This engagement consisted of listening to another pupil read aloud while following along in a reader or of dialogue with another pupil with regard to an art project being undertaken.

Pupil-Teacher Interaction, Pupil-Pupil Interaction and Pupil-Material Transaction. These three processes were not observed occurring simultaneously in this classroom.

Wait Time and Other Activities. One generalization that can be drawn from the information on the bar diagrams of Figure 2 is that each of the four target pupils spent approximately 30 percent of the observed time in wait time or other activities. Since it was observed that each of the four target pupils spent such a large amount of the observed time in waiting and other activities, the coding and observations of these categories merit further discussion. A pupil was coded as waiting (Wait Time) when time was spent waiting during regular classroom hours. Examples of waiting were seen when a pupil was waiting for others to quietly assemble; when a pupil was waiting to have completed work corrected; when a pupil waited for further directions or instructions for an assignment; when instruction was interrupted by the need to discipline another class member; and when the teacher was interrupted by external influences during instruction. An engagement that could not be coded as one of the three processes related to learning or wait time was coded as other activity. These engagements included: bathroom visits; drinking at the water fountain; walking down the hall to the music room or

gymnasium; time spent in the hallway as punishment; coming into the classroom in the morning, after recess, after lunch, or after music or gym instruction; cleaning up an art activity; sharpening pencils; preparing pencils, erasers, books, papers, or crayons for use; putting away materials; and getting ready for dismissal.

STUDY B

The distribution of each target pupil's engagement during the time observed is presented in the bar diagrams of Figure 2. The four target pupils spent 78 to 87 percent of the observed time engaged in one of the three processes related to learning. Brandon, the more outgoing boy, spent the most time while Ann, the more outgoing girl, spent the least time in this engagement.

Pupil-Teacher Interaction. The pupils were observed in pupil-teacher interaction more often than any of the other categories. They spent 30 to 34 percent of the observed time in this engagement with Ann, the more outgoing girl, spending the most time and Brandon, the more outgoing boy, and Jane, the less outgoing girl, spending the least time. A breakdown of the pupil-teacher interaction in this classroom (see Table 2) revealed the largest percent of all pupil-teacher interaction was spent listening to the teacher speak to a group. The four target pupils spent approximately 73 to 84 percent of their pupil-teacher interaction time in this form of engagement. The least time was spent by all pupils listening to the teacher read or tell a story, approximately 0 to 1 percent. The observed

pupil-teacher interaction was most often initiated by the teacher, directly related to intended learning, and consisted mainly of all pupils listening to the teacher speak to a group. The setting for pupil-teacher interaction was most often total class (approximately 85 percent of the observed time), however, did occur in a small group setting (approximately 15 percent of the observed time).

Pupil-Pupil Interaction. (NOTE: A decision was made at this stage of the data analysis to set the category of listening to another pupil answer a teacher directed question separate and apart from the remaining categories of pupil-pupil interaction. It was determined that this interaction was of a different essence than the other forms of pupil-pupil interaction and was more likely some combination of pupil-teacher interaction, pupil-pupil interaction and wait time.) The pupils spent 14 to 20 percent of the observed time engaged in pupil-pupil interaction. Brandon, the more outgoing boy, and Jane, the less outgoing girl, spent the most time while Ann, the more outgoing girl, and Michael, the less outgoing boy, spent the least time in this engagement. A breakdown of pupil-pupil interaction (see Table 4) revealed the largest percentage of pupil-pupil interaction was listening to another pupil speak. The target pupils were observed least often engaged in non-verbal demonstration. The observed pupil-pupil interaction was more often pupil initiated than teacher initiated and directly related to intended learning. The pupils were observed listening to another pupil answer a teacher directed question 3 to 5 percent of the observed time. This engagement was almost always teacher initiated (approximately 98%) and was always directly related to intended learning (100%).

Pupil-Material Transaction. The target pupils were engaged in pupil-material transaction 16 to 20 percent of the observed time. The two boys spent the most time (20 percent each) while the two girls spent the least time (16 percent each) engaged in this manner. A breakdown of pupil-material transaction (see Table 6) revealed the largest portion of all pupil-material transaction was spent in non-experimental, closed structure, paper/pencil activity. The four pupils spent approximately 23 to 64 percent of the pupil-material transaction in this engagement. It is interesting to note the small amount of time (approximately 2 to 14 percent) the target pupils were observed with a book. The pupils were observed 48 to 78 percent ofthe pupil-material transaction time engaged in a paper/pencil activity and 19 to 49 percent with a manipulative activity. The observed pupil-material transaction was most often initiated by the teacher (60 to 81 percent), directly related to learning (89 to 100 percent) and consisted of non-experimental, closed structure, paper/pencil activity.

Pupil-Teacher Interaction and Pupil-Material Transaction. These two processes related to learning occurred simultaneously 2 to 4 percent of the observed time. For all target pupils this engagement was mainly teacher initiated (over 80 percent), directly related to the intended learning and consisted of the teacher speaking to the total class with regard to the non-experimental, closed structure, paper/pencil activity in which the pupils were engaged. This paper/pencil activity consisted of a workbook page, individual record keeping for learning centres or a printing lesson.

Pupil-Teacher Interaction and Pupil-Pupil Interaction. These two processes occurred simultaneously 3 to 8 percent of the observed time. For all four target pupils this engagement was mainly pupil initiated, directly related to the intended learning and occurred in a small group setting at a learning centre. It consisted mainly of dialogue with regard to a learning activity.

Pupil-Teacher Interaction, Pupil-Pupil Interaction and Pupil-Material Transaction. These three processes were observed occurring simultaneously 0 to 1 percent of the observed time. The engagement was teacher initiated, directly related to intended learning and occurred in a small group setting (four pupils) at a learning centre.

Wait Time and Other Activities. The four target pupils were recorded 13 to 22 percent of the observed time in wait time or other activities. Ann, the more outgoing girl, was observed most often and Brandon, the more outgoing boy, was observed least often in this engagement. A pupil was coded as waiting (Wait Time) when time was spent waiting during regular classroom hours. Examples of wait time were seen when a student was waiting to speak to the teacher or have completed work corrected; when a pupil was waiting for further directions or instructions; when a pupil was waiting for the computer to load the game chosen; when a pupil was waiting for other pupils to return to their desks; and when the teacher was interrupted by external influences during instruction. Other activities included those engagements that could not be coded as one of the three interactions/transaction related to learning or wait time. This

engagement included: moving from one centre to another; drinking at the water fountain; bathroom visits; walking down the hall to the music room or gymnasium; coming into the classroom in the morning, after recess, after lunch, or after music or gym instruction; cleaning up room; and getting ready for dismissal.

GENERAL RESEARCH QUESTION

Question One: Play

Does play occur in the natural classroom setting, and if so, what is the nature of that play?

The examination of play, no matter what the context, is difficult. Bruner (1975) maintains that everyone recognizes play when it is seen, but one cannot frame it into a single impeccable definition. Children at play should have a wide latitude in their choice of activities and use of materials (Johnson and Ershler, 1982).

The data collected through coded observations, general observations, and informal interviews with the teachers and the pupils of each classroom will be used to respond to the general research question.

Possible Occurrence of Play

For the purpose of this study, play was defined as an action or activity chosen by a pupil (self-initiated), free from adult

domination and carried on for its own sake. During the data analysis it was therefore determined that any engagement that had been initiated by the teacher could not be considered play in accordance with the aforementioned definition.

The pupils in Study A were engaged in self or other pupil initiated pupil-teacher interaction, pupil-pupil interaction or pupil-material transaction for 4.8 to 8 percent of the total 540 observed minutes. The possibility of play in the classroom environment of Study A could only have occurred during 4.8 to 8 percent of the observed time.

The pupils in Study B were engaged in self or other pupil initiated pupil-teacher interaction, pupil-pupil interaction or pupil-material transaction for 17.5 to 21.6 percent of the total 540 observed minutes. The possibility of play in the classroom environment of Study B could only have occurred during 17.5 to 21.6 percent of the observed time.

The percentage of time in which play could occur does not provide a clear picture of the nature of the play which may have taken place during the self initiated interactions or other pupil initiated interactions and transaction. Therefore, a description of a typical day in each classroom will be outlined to address play in a descriptive manner.

STUDY A

Description of a Typical Day. The day begins at 8:45 a.m..

As this Grade One classroom had a split entry approximately one half of the children arrived at this time and departed at 2:30 p.m.. These pupils were known in the classroom as the "9 o'clockers". The day for the other half of the children was from 9.45 a.m. to 3:30 p.m.. These pupils were known as the "10 o'clockers".

The pupils were greeted at the classroom door in a friendly manner by their teacher, Mrs. A.. As the pupils removed their coats, mittens, and hats, and put on their indoor footware, a sharing time between the teacher and pupils took place. As Jason entered the room Mrs. A commented, "You have a brand new shirt! That's the shirt I like to see you wear in the winter. It's warm." Jason smiled at Mrs. A. as he rubbed his shirt sleeve.

"Anybody doing anything special this weekend?" asked Mrs. A..

"Swimming," said Carl.

"We're going to the farm!" Stephen exclaimed.

"Grandpa's farm? asked Mrs. A..

"No, my uncles," was the response.

The pupils then settled into their individual desks as Mrs. A. checked the homework. Stephen and Sherry had not brought back their homework. Mrs. A. asked the pupils for the reason this work was not at school and jotted the given response into a notebook. This information will be utilized by the teacher during a parent-teacher conference.

Twelve words from yesterday's phonics lesson had been printed on the chalkboard. There were letters missing and the teacher wanted the children to fill in the blanks with the appropriate letters.

"This is so easy I expect every hand up." The pupils responded to Mrs. A.'s statement with a show of hands and she called pupils individually to the chalkboard to fill in the missing letters. The remainder of the pupils corrected their errors in the notebooks Mrs. A. placed on their desks prior to their arrival. The teacher moved about the room as the correction time continued.

As Paul waited for the next word to be filled in on the chalkboard he moved his eraser around his desk top with his pencil. "Paul, you'd better not play when I'm watching. Alice you're next."

Alice moved slowly to the chalkboard and Mrs. A. commented "Come on let's speed this up."

Sarah looked about the room and flashed a smile to Carrie. Mrs. A. approached Sarah's desk saying "Are you getting your book fixed up? I expect you to do that. There's still a blank here (Mrs. A. points to her book)."

Once all twelve words were completed on the chalkboard and all pupils had finished their corrections Mrs. A. began to read stories the pupils had written at home the night before. As Mrs. A. began Sarah's story, she spoke out "Can I read my own story?" Mrs. A. held the book for Sarah while she read her creation. Several other pupils then requested to read their work.

As the pupils gathered around a table at the rear of the classroom, Mrs. A. passed out the basal readers. The teacher then called on each child to orally read a section of the story. Mrs. A. explained parts of the story as they went along and often re-read sections demonstrating how the part may be read with expression. The

pupil was then instructed to re-read the section.

When Jason was called upon to read he was unable to locate the appropriate place in this reader. "Jason, you will have to come and sit by me and read." Jason moved next to Mrs. A. and was shown where to begin.

The "9 o'clockers" lined up for a bathroom break and were returning to the classroom as the "10 o'clockers" arrived. The whole class then lined up and proceeded down the hall to the music room. Mrs. A. had a spare while the pupils received their music instruction from a music specialist. After the half hour music class, Mrs. A. returned to the music room.

"Can we stay and sing?" queried Michael.

"I'd like to sing all day too, but there are other things to be done," replied Mrs. A.. The pupils respond with several ughs and sighs.

"Two lines, just turn and let's go back." The group quietly returned to the classroom.

Mrs. A. called Trevor to the front of the classroom. Putting her arm around Trevor, she said, "Today's a special day. It's Trevor's birthday." Trevor smiled and snuggled into Mrs. A.'s side. After she reminded to the other pupils to respond to Trevor's birthday invitation, Mrs. A. began to sing 'Happy Birthday' and the pupils joined in.

Mrs. A. read the stories the "10 o'clockers" wrote at home. Three pupils then shared their 'show and tell' item with their peers. Paul, the third pupil to share, held up his stuffed dog. Mrs. A. said "Ok, Paul I want to hear you talk."

"My dog."

"Where did you get your dog?"

"Grandma."

When all pupils had settled after 'show and tell' Mrs. A. directed the pupils to take out their phonics books and prepare their pencils and erasers. Mrs. A. then drew a box on the board saying "Numbering today will be a little different (pause)... One through six on this side and seven to twelve in the middle of the page like this (she printed the numbers inside the box on the chalkboard)." Several pupils began to chat and Bob was observed poking Paul, who sat right in front of him, in the arm. Paul jerked his arm away and continued to print. Bob, after a quick glance in Mrs. A.'s direction, poked Paul again. Paul turned around and uttered "Don't!" Mrs. A. advised the class, "Don't say anything just write." Once all pupils were prepared and ready the teacher dictated twelve words which the children printed in their notebooks.

After their recess break, the pupils re-entered the classroom laughing and chatting. "Recess is over now!" announced Mrs. A.. The pupils quietly settled into their desks. The teacher organized the pupils into two groups; one group sat on the floor while the second group stood in a line and faced the children who were on the floor. Sally was uncertain as to what she should do. "Sweetheart, just sit on the floor," advised Mrs. A.. She approached the pupils who stood and said "Take a card, say nothing." One pupil from the group sitting was called upon by the teacher to order the standing pupils according to the number cards they held as the others looked on. "By George

you've got it," said Mrs. A. "Excellent!" The groups were directed to switch positions and the process was repeated. Joanne rubbed her legs back and forth on the floor as she sat watching. "Please sit still Joanne," said Mrs. A..

The pupils returned to their desks and Mrs. A. explained the pages to be done in their green workbooks.

"I can't ..." began Paul.

"Raise your hand." As Paul raised his hand Mrs. A. approached his desk and provided assistance. Several pupils appeared to have finished the assigned work. "If you have finished, do page 139." Several requests of "I've got to go to the bathroom" were made during this period. The pupils were granted permission.

"Leave your mathbook on your desk and line up (for lunch)."

As the children returned from their lunch break Mrs. A. dealt with a dispute between two pupils in the hallway. The other children entered the classroom and slowly made their way to the desks while chatting freely with one another. Mrs. A. and the two pupils entered the classroom. Mrs. A. called all pupils to the front of the room and instructed them to form a circle by joining hands. The children waited for their two classmates to remove outerwear and joint them. The teacher then asked the pupils to drop hands. "Plop right here," she said as she sat down on the floor.

"Hold up your left hand and slowly bring it down and rest it on the shoulder of the person beside you (Mrs. A. did so as she spoke). Look at the person on your left and think of something nice to say to that person." A few minutes were provided for the pupils to

think and then the teacher selected Stephen to begin oral sharing. Although the pupils appeared to be enjoying their peers comments, many become restless. Several reminders were given by Mrs. A., such as:

"Quiet."

"Sit in your own spot."

"John, since you can't sit still return to your desk."

After all pupils had their turn to talk Mrs. A. instructed the pupils to "Choose a person to write one nice thing about. Go to your desk and put your head down and think about what you will write."

"I'm going to write about my dad... he's ..." Sally began.

"Hold it Sally, you're ahead of me. You're sharp as a tack (today)." The teacher passed out paper and the pupils began to print their thoughts. Molly raised her hand.

"I lost my paper," she said.

"Molly how could you lose the paper half way through?" Mrs. A. goes to her desk and shakes a notebook and out falls the paper.

After recess only the "10 o'clockers" returned. They were instructed to bring a pencil and eraser to the back table. The teacher passed out a sheet and paused for the pupils to stop talking before she began the explanation. The pupils listened very quietly to the teacher and then immediately began to work. As the worksheet was completed the pupils sat quietly and waited for their peers to finish.

Mrs. A. asked the pupils several questions regarding the worksheet story. "Why did Joey build the playhouse? Tammy?"

"Fun."

"Molly."

"Cardboard boxes."

"Phillip?"

"He built it to play in with his friends." Mrs. A. smiled and said, "That's exactly what I wanted."

After summarizing the story, Mrs. A. dismissed the pupils for the day.

Discussion. Learning was approached in a direct and businesslike fashion. A minimum of pupil initiated activities and peer interaction was observed. The teacher was the dominant leader of activities and the central focus of attention. She made the majority of the decisions regarding what and how skills would be learned. She set the stimulus and often demonstrated what was expected. The pupils responded to that stimulus almost automatically. There was usually one correct response to the stimulus and those pupils whose products met expectations were rewarded with verbal praise from the teacher.

All the children used the same materials for their activities and produced similar, and at times identical, products. The pupils generally used the materials in the same way and followed the same procedures. The activities were done in order to produce a finished product. The teacher often demonstrated what was to be done and what was expected (example: "Take your two white strips. Make the two strips look exactly like an L (demonstrated). Fold one, then the other to make cat stairs.")

The entire class worked on all assigned tasks simultaneously and the pupils were required to complete the assigned tasks during the designated time period. All activities were required and every pupil

started the activity at a designated time. Occasionally, homework was assigned in order to complete unfinished tasks or for the purpose of additional practice.

While many of the observed interactions were playful in nature, and often a release of energy, they were not recognized as "play" by either the teacher or the pupils.

Later, during informal interviews with the pupils, they clearly distinguished between work and play. Work activities were considered more important than play activities by the pupils with the former occurring in the classroom and the latter on the playground. They believed no play occurred in the classroom. Activities such as coloring, drawing, waiting in line, listening to stories, clean up and singing were all called work. The children appeared to view work as something which they were told to do no matter what the nature of the activity.

Emphasis in the classroom was placed on cognitive skill acquisition, content learning, didactic instruction, and extrinsic motivation. Word analysis activities, printing activities, a minimum of independent silent reading, and teacher led group experiences were most prevalent.

STUDY B

Description of a Typical Day. The classroom day began at 8:45 with the pupil's arrival. News of events at home and happenings on the way to school were shared as the pupils hung up their coats and

put on their indoor shoes. A small group of pupils gathered around Mrs. B. and shared their news with her as she rubbed a boy's head, wet due to the rain, with paper towels. With the approach of a tearful little girl, Mrs. B. told her group she must take a "time out" and then proceeded to privately dialogue with the child. The other pupils continued their sharing, investigated a new "Cat Centre" in one corner of the classroom, or chose to complete pages in their arithmetic workbooks.

A low tinkle of a bell was heard and Mrs. B. requested "Can I have you home please?" The pupils moved quietly to the desk area of the classroom. The purpose of the coming together was to share the morning opening. This sharing included such things as: the singing of O' Canada, saluting the flag, talking with friend, making a statement about the thing they are thankful for that day, and the centre visits were discussed.

The next thirty minutes were spent in the gym with the pupils actively involved for the total time. They set up the equipment with a minimum of teacher guidance. At the conclusion of the period the equipment is disassembled and put away by the pupils.

Parent volunteers arrived as the pupils returned to their classroom from the gym. As Mrs. B. had the pupils pre-grouped for centre visits, they proceeded to their designated centre. The pupils moved from one centre to the next on a rotational basis.

The centres offered a wide variety of activities to challenge the range of abilities in the classroom and were organized so each pupil was free to choose a comfortable working level.

The children were actively involved and talked about their activities with their friends. These centres included a listening centre, a phonics centre, a language centre, a computer area, a painting centre, a large block area, a sand table, several arithmetic centres, a craft construction centre, a spelling centre, and a filmstrip viewing area. During one day the pupils could visit anywhere from two to six centres and were responsible for their individual record keeping. The number of centres visited per day were determined by the other activities which were planned (for example: a teacher directed arithmetic lession, a library period, a 'show and share' time). Several centre scenarios were noted as talk flowed freely in all areas of the classroom.

At the Marvellous Men Centre, an arithmetic area, four pupils are observed playing a card game. Not following the predetermined rules, each pupil held a card in front of them and acted out the character of the "Marvellous Man" on their card.

Sarah: "I'm very strong."

Andrew: "Are you afraid of me?"

Sarah: "No, I'm tough but you're my friend."

Ann: "Purple grape is our leader. She is good."

Kelly: "Let's invite the castle (looking over at the block area)."

Andrew: "Is there a knight and dragon?"

Previously one of the children explained his selection of a character to the researcher. There obviously had been some planning on the part of the pupils as they all appeared to "know" the plot of "their play"

and there was obvious cooperation among the pupils. They had established their own rules, although much of the dialogue appeared spontaneous.

In the block area, three students were involved in creating a castle with a moat. The class had discussed such a castle the day before. During this observation, several problems were encountered and solved by the pupils. For example, the drawbridge was not strong enough for a child to walk across. Through discussion and several reconstructions a stronger drawbridge was finally constructed. "What good ideas," Mrs. B. exclaimed as she was shown the creation.

Across the room at the Number Nook, four pupils wore letter carrier hats made from paper hearts. They were posting various colored heart-shaped 'letters' on which a number fact had been printed. Each 'letter' was placed in a heart-shaped mailbox with the appropriate sum. There was laughter and chatter as the pupils assisted one another. "It's the one over there Dale!" Sam laughed as Dale dropped the heart into the mailbox. "I tricked you, Dale!" Dale took out the heart, "Two plus four equals six not seven," and he then placed it into the appropriate mailbox. They shared stories about the letters they had received in their mailboxes at home.

Andrea: "My grandmother writes me letters."

Tammy: "Who?"

Andrea: "My grandmother. She is my dad's friend and she lives in Saskatchewan."

Tammy: "I have a grandma."

Andrea: "My grandmother loves me."

The entire activity was then reorganized into a color plus number mailing game by the pupils.

Four students wearing earphones sat at a tape recorder listening to a story. Jody was observed walking her finger under the words in the story as she listened. Kathy, book closed in front of her, leaned back on her chair with eyes wide open and hands on the earphones. The other two pupils were getting organized to share the same book, although there was a separate copy for each pupil. They moved their chairs together and each had a hand on opposite corners of the book. As Mrs. B. passed by she touched these two pupils on the shoulders and said, "You like Mr. Mugs books, don't you!"

An initial consonant bingo game took place in the coat room area. A parent volunteer called the words while the pupils covered the letters on their card with Cheerios. As the game proceeded this dry cereal also became a snack.

In another corner, two children were engaged in a computer game. This activity was supervised by a father, who in addition, answered questions regarding the workings of the computer.

The playhouse was always a centre of bustle and activity. Three pupils were observed acting out a tea party. Each pupil had a cabbage patch doll and as they prepared to have tea, the dialogue observed was with regard to a new type of pampers - 'Luvs'.

Tony: "My baby likes 'Luvs' because they're so white."

Sandy: "My baby likes 'Luvs' because they're so soft."

Sue: "My baby likes 'Luvs' cause my mom uses then on Brad."

Tony: "Sit down for tea!"

Sandy: "I'll phone how Brad is."

During 'centre time' Mrs. B. visited with pupils at various centres around the room. She talked with the pupils about their activities and occasionally became involved herself. She used this opportunity to observe her pupils interacting with their peers, materials and the parent volunteers.

The students were dismissed at 3:30 p.m. and anything that was not finished that day could be finished during the next class session.

Discussion. Learning was a process of mutual decision making between the teacher and the pupils. The teacher emphasized the value of the pupils' active manipulation of materials and ideas. She appeared to be facilitator who helped the pupils learn through open-ended questioning strategies and by introducing new information and materials. This assisted the pupils in achieving pre-set as well as incidental goals. Numerous responses and solutions to problems were supported, and divergent thinking and problem solving were stressed. A supportive classroom environment was created in which the pupils expressed their own ideas and pursued their own choices at given times during the day.

At times learning was approached in a business like fashion. This occurred mainly during arithmetic, music, printing and library lessons. The students were taken from their classroom to another area in the school and instructed by other teachers during the music and library periods. Arithmetic and printing were taught by Mrs. B. in the pupil's home classroom.

During informal discussions with the children, it became apparent that they did not make a clear distinction between work and play. Many felt all activities in the classroom involved play. Several distinguished between work and play saying arithmetic and music were work while all other activities were play.

A large portion of each day was spent in a teacher led group activity. During this time the pupils shared ideas, personal experiences and problems or difficulties they were experiencing. These sharing times were spent with the pupils and teacher gathered together on the floor. Although the group was teacher led, the children were encouraged to express themselves freely resulting in self-initiated pupil-teacher interactions and pupil-pupil interactions.

The learning centres facilitated flexible groupings, small group interaction, parental involvement and teacher mobility. The centres incorporated such things as open ended activities, activities with closed structure, gamelike activities, art work, free choice, prescribed activity, and frequent interaction with peers and adults. The centres encouraged creativity and divergent processes as well as convergent thinking. The teacher and parent volunteers actively interacted with the children during this time. The grouping of pupils for the time spent at the learning centres was flexible and the group composition was always changing in response to individual requests or patterns of growth and learning.

Spontaneous, self initiated play was observed at several centres. These centres included the block area, the construction centre, the sand box, the painting centre and the playhouse. Dress up clothes, blocks of assorted sizes and shapes, sand, paint and

construction materials (for example: paper tubes, maccaroni shapes, styrofoam bits, and plastic cylinders) were used for many purposes. The props the children used during their play encouraged them to do things of their own initiative, to be creative, to make decisions, and to interact with their peers. This play allowed the children to actively manipulate the environment and encouraged them to clarify their thinking through peer interaction. Their play became a way to test their thoughts and beliefs. During these times the process of play rather than the product was considered very important by the teacher.

Emphasis in the classroom was placed on the social and emotional well being of the children, development of each individual, cognitive processes, learning by discovery as well as through direct instruction and intrinsic as well as extrinsic motivation. The children engaged in teacher led discussions, pupil-pupil interactions, and play activities.

SUMMARY

This chapter included the analysis of data from the observation instrument, general classroom observations, and informal discussions with participants. The data were utilized to describe each classroom in terms of pupil-teacher interaction, pupil-pupil interaction, pupil-material transaction, and play. Consideration was given to the setting, the amount of time spent, and the nature of each form of engagement. A description of a typical day in each classroom provided an overview of the nature of the play which occurred.

CHAPTER 5

SUMMARY, MAJOR FINDINGS AND CONCLUSIONS, AND IMPLICATIONS

This chapter summarizes the study. Major findings and conclusions centering around the pupil-teacher interaction, pupil-pupil interaction, pupil-material transaction, and subsequently play are outlined. Consideration is given to implications for educational practices and for further research.

SUMMARY OF THE STUDY

The purpose of this study was to describe the influence of classroom environments on pupil-teacher interaction, pupil-pupil interaction, pupil-material transaction, and subsequently play. Four pupils in each of two different classroom designs were the focus of the study.

The study was descriptive in nature and data were gathered through classroom observation. A two-fold pilot study was conducted to refine the coding system, to determine the time sampling procedure, to train another teacher/researcher in the observation process, and

to establish interobserver reliability. A two minute time sampling cycle was used in the final coding system. This two minute cycle was divided into four 30-second segments and each of the four pupils were observed in a pre-determined sequence at the beginning of their 30-second segment. The behavior observed at that moment was coded in terms of the type of pupil engagement, the nature of the activity, and the instructional setting. These observations were assumed to be indicative of the pupils' behavior for a two minute interval. Additional remarks were coded to further describe the moment of observation.

The two grade one classrooms involved in the study were recommended by the Primary Consultant of the Edmonton Public School System, who felt the classroom met the predetermined environmental descriptors and who identified the teachers as excellent teachers within their given classroom environment. These two teachers were then asked to list children in the class as more outgoing or less outgoing based on a given definition of 'outgoing'. The sample of four pupils per classroom was then chosen by the researcher from a list provided by each teacher. The sample consisted of a boy and a girl from each list.

The observation data collection took place from January 24 to February 1, 1985 for the first half of the study (Study A) and from February 7 to February 15, 1985 for the second half of the study (Study B). The data were collected during 30 minute intervals dispersed throughout the five day period and yielded 540 minutes of observation for each of the target pupils.

The data were analyzed in terms of four specific research questions and one general research question dealing with pupil-teacher interaction, pupil-pupil interaction, pupil-material transaction, and subsequently play.

MAJOR FINDINGS, CONCLUSIONS AND EDUCATIONAL PRACTICE IMPLICATIONS

The major findings and conclusions along with a discussion of their educational practice implications are reported below.

1. Pupil-Teacher Interaction. Three major conclusions were drawn from an analysis of the data collected for the eight target pupils regarding pupil-teacher interaction. First, approximately one third (30 to 35 percent) of the observed time in both classrooms was spent in this form of engagement. Each of the eight pupils was observed in pupil-teacher interaction 160 to 188 minutes of the 540 minutes observed. This finding is comparable to results of previous research studies (Smyth, 1979; Jackson, 1976). Secondly, a large portion (88 to 95 percent) of all pupil-teacher interaction was teacher initiated and directly related to the intended learning. This interaction in both classrooms was mainly pupils listening to the teacher speak to the whole group. Thirdly, most pupil teacher interaction (over 90 percent) occurred in a large group setting.

Educational Practice Implications. If meaningful learning is rooted in the manipulation of concrete materials and real experience

(Rousseau, 1762; Frobel, 1887; Piaget, 1962; Weininger, 1979), then pupils should spend more classroom time involved in hands on experiences, interaction with peers, and playing and less time in extended periods of listening to the teacher talk. A delicate balance is vital and should involve a flexible interchange. Teachers need to reflect upon what they do and say in the classroom environment and to continually access what happens between themselves and the pupils in their classroom setting. Teachers need to be more flexible in terms of the type of direction provided. That is, there will be times in pupil-teacher interaction when the teacher assumes a more dominant role while at other times the teacher will assume a more passive role. The style of interaction may be determined by the situation.

2. Pupil-Pupil Interaction. An analysis of the data collected indicated a difference did exist with regards to the setting, the relative amounts of time spent and the nature of pupil-pupil interaction in the two classrooms.

In Study A, the pupils were engaged in pupil-pupil interaction for a relatively small part of the observed time (8 to 13 percent approximately). A relatively large portion of all pupil-pupil interaction (64 to 77 percent approximately) was teacher initiated and directly related to learning. The observed pupils spent the majority of the pupil-pupil interaction time listening to another pupil answer a teacher directed question (3 to 6 percent approximately) and it must be noted that this cannot be considered a true pupil-pupil interaction. Therefore, only 5 to 7 percent of the 540 minutes observed were spent engaged in some form of pupil-pupil interaction.

All observed pupil-pupil interaction occurred in a large group setting.

In Study B, the pupils were engaged in pupil-pupil interaction for approximately 17 to 25 percent of the time observed. Pupil-pupil interaction in this classroom setting was initiated more often by the pupils (40 to 56 percent approximately) than by the teacher (36 to 49 percent approximately). The pupil-pupil interaction consisted mainly of listening to another pupil speak; in dialogue; and (3 to 5 percent approximately) listening to another pupil answer a teacher directed question. As has been previously indicated the latter cannot be considered a true pupil-pupil interaction. Therefore, 14 to 20 percent of the 540 minutes observed were spent engaged in some form of pupil-pupil interaction. The majority of observed pupil-pupil interaction took place in a large group setting (70 percent approximately), however, these interactions also occurred in small groups at the learning centres.

One commonality in the observed pupil-pupil interaction of both classrooms was the limited occurrence of pupil initiated interaction not directly related to the intended learning. This was observed in Study A, 4 to 29 percent (approximately) of the 540 minutes and in Study B, 2 to 15 percent (approximately). One pupil, the more outgoing girl in Study A, spent more time in this form of engagement than the other pupils. Further inquiry would be necessary to determine the reasons behind this occurrence.

Educational Practice Implications. It has been suggested that the environment has an effect on the behavior of people (Lewin, 1931). The findings of this study indicate that environmental design

of a classroom may be one influential factor in the amount of pupil-pupil interaction. The majority of interaction in Study B occurred in the learning centres and in the clustered desk arrangements (refer to Appendix B for classroom floor plan). It was assumed that this environmental design was utilized by the teacher to encourage pupil-pupil interaction. On the other hand in Study A the environmental design was one in which pupil desks were separated into rows and pupil-pupil interaction was minimal. This finding is comparable to that of Lambert and Black (1985) in which rows of desks in a classroom resulted in lower pupil participation. Therefore, if pupil interaction and participation in classroom discussions is desirable pupils should be seated in clusters or in a circle.

Young children have trouble coping with large groups and often become discouraged when working alone; learning is not a solitary activity and development does not consist of a lone person building a model of the external world (Bruner, 1982). More extensive use of small groups in a classroom may be advisable as the pupils will more readily participate and the interaction that occurs will be more meaningful and personal.

3. Pupil-Material Transaction. An analysis of the data collected indicated the amount of time spent in pupil-material transaction was similar for both classrooms. The four pupils in Study A spent 13 to 23 percent of the observed time in pupil-material transaction and the four pupils in Study B spent 16 to 20 percent of the observed time engaged in this way. The nature of the transaction, however, varied in the two classrooms.

While the largest portion of all pupil-material transaction in both classrooms was non-experimental, closed structure, paper/pencil activity more time was spent in this type of engagement in Study A than in Study B. While the majority of pupil-material transaction in both classrooms was teacher initiated and directly related to the intended learning (Study A, 83 to 97 percent approximately; Study B, 60 to 81 percent approximately) the pupils in Study B were engaged in more pupil initiated transaction. There was very little pupil initiated material transaction not directly related to intended learning in either classroom (Study A, 13 to 17 percent approximately; Study B, 0 to 12 percent approximately).

All pupil-material transaction occurred in a large group setting in Study A. In Study B approximately 70 percent of all pupil-material transaction occurred in a large group setting while approximately 30 percent occurred in a small group setting. Thus the environmental design in the two classrooms appeared to be one factor influencing the nature of and setting for pupil-material transaction.

Educational Practice Implications. Teachers often assume that learning materials chosen by a school district force them to use a specific teaching style and environmental design. The two classrooms involved in this study were part of the same school district and yet teachers utilized these materials in differing ways. Therefore, it appears that whatever materials belong to the school district and are available to teachers can be approached from different perspectives.

> "In order to emphasize the three R's educators ... may have forgotten how they themselves learned - through active sensory exploration and manipulation of the environment. In cutting back (in the area of active exploration and manipulation) and intensifying time-on-task for written literacy, (educators) may be cutting the real basics from the ... primary grades" (Sinatra, 1983, p.9).

A balance of materials in classrooms is therefore desirable. Bruner (1982) suggests two types of materials in addition to the paper/pencil activities used in written literacy. The first type would allow pupils to express themselves and could include items such as sand, clay, and water. The second type of material suggested would challenge pupils and provide them with the ability to see how they are doing without asking anyone. These more structured toy/props, such as blocks and puzzles, could lead to more complex play in which pupils have a clear focus. Workshops may be desirable to heighten the awareness of teachers in the flexible use of materials.

4. Play. In this study one classroom environment did encourage more play than the second classroom environment. Houston-Stein et al. (1977) concluded that classroom structure more likely determines children's behaviour than visa versa. Pupils will quickly create play situations if given the freedom of how to use the classroom environment and classroom time. Play cannot occur where the physical setting and the use of time do not support it. This study revealed the classroom environment of Study A, which focused on teacher led group experiences, teacher initiated activities, emphasis on a product, whole class rather than an individual orientation, and pre-established space organization, was not conducive to play.

The use of time in this classroom did not allow for the occurrence of play. The pupils spent a large amount of time waiting or in 'other activities' (going to the bathroom, moving to a designated area). This cut down the amount of time the pupils engaged in peer interaction and subsequently play, as a large portion of a child's play activity is interaction with others. The rigidity of the environment and materials, and the large group setting were additional barriers to the occurrence of play. The classroom environment of Study B., which included pupil and teacher initiated activities, flexible curriculum, provision for pupil movement and talk, abundance and diversity of manipulatory materials, flexible use of space, and individualization of learning, was more conducive to the occurence of play. This classroom was full of interesting things to do and it offered opportunities for the pupils to interact with one another and manage things for themselves. The use of time in this classroom more readily provided these opportunities as the pupils spent less time in waiting and other activities.

Educational Implications. Play has long been considered frivolous, meaningless, and opposite of work; this has been especially true in education. While reference is made to a number of educators who are advocates of the utilization of play in the classroom, these educators represent only small portion of the larger educational world. There are many educators who, like the Edmonton Catholic School Board, are

> ... calling for ... (the use) of traditional teaching methods ... (where) the teacher is in charge and the focus of attention; (where) much homework is assigned; (where) students perform assignments as a group and do not work at individual or unsupervised group tasks(Weatherbe, 1984, p.37).

The work ethic is still dominant in early childhood programs and as pointed out by Martin (1979) there is a great need to develop a play ethic for our schools to complement the work ethic found in most programs.

Play has recently gained support from early childhood educators as being relevant and meaningful (Weininger, 1979). Alberta Education is supportive of a play based program in the education of young children. As stated in the document Philosophy, Goals, and Program Dimensions (1984), play is viewed as

> "... a central and necessary part of children's development... Play is a major learning process ... (providing) many situations in which the child observes, discovers, reasons and solves problems (p. 3)."

The significance of play in relation to children's learning seems intuitively evident but difficult to explain and thus can escape recognition. John Dewey (1915) states that children learn through doing - their own doing, not someone elses. Most of a child's waking hours are spent playing; the child enters the school environment with a vast array of knowledge which was was gained through personal experience and play. In the school setting however, work and play are often viewed as opposites. This dichotomy is presently being addressed by Alberta Education through the investigation into and the encouragement and support for an upward extension of the play based philosophy into the Grade One program (Pain, 1984).

In order to accommodate the upward extension of the play

based program, Grade One classrooms "must provide (in addition to materials) time and space so that play is an integral part of every child's day (Alberta Education, 1984, p.3)". Time and space, both metaphorically and physically, are required in order for play to occur. The provision of time allows pupils to initiate a play scheme, develop it, and expand on or from the original idea. Space and flexible landscapes allows pupils to express ideas, use their imaginations, and make transformations. Flexibility in the manipulation of time, space, and materials facilitates play.

In addition to structuring an environment which encourages spontaneous play in the classroom, a teacher's role should include "making suggestions or asking questions which leave the activity under the child's control but which may serve to reinforce, extend or clarify what is being learned in the play situation (Alberta Education, 1984, p.4)". This intervention is imperative for development (Smilansky, 1968; Strom, 1974; Martin, 1979). Spontaneous as well as guided play carefully implemented is a vital and relevant part of classroom learning during the early years of schooling.

Most educators in the past did not recognize the complex nature of play just as many teachers today do not recognize its benefits. Teachers often curtail the occurrence of play in favor of more task oriented activities in the classroom. Goodlad (1984) found that experiences in the school setting were either meaningful at the given time or they were never meaningful to the person. He states "We would be well advise ... to look less to test scores in determining the quality of educating in our schools and more to what students are

called upon to do (Goodlad, 1984, p.15)." The requirement for Grade One pupils to sit quietly and uniformly in desks tends to run contrary to the nature of healthy, noisy, active and playful five, six or seven year olds (Oppenheim, 1984). Students "...cannot learn effectively when their very mode of learning - through play - is taken from them and replaced by a system which is more concerned with what they learn than how they learn (Weininger, 1979, p. 167)".

Play is very important, basic to intelligence and a key in facilitating growth of thinking in children (Yawkey, 1979). The intellectual elements of play are transformation and language (Piaget, 1972; Smilansky, 1968). For young children, transformation is the ability to change self, objects, or situations through the imagination and imitation of play. Language, the second basic element that links play with intellectual skill development, is the capacity to establish and express understanding through various forms of verbal and non-verbal communication. The utilization of play in the classroom allows for

> ... true education - is coincident with life and is not limited to special skills or concepts and particularly not to test scores. True education does not come packaged or sequenced. Much of it is spontaneous, an outgrowth of openness and curiousity It is this attitude toward learning, this openness to questioning and curiousity that ... (we as teachers) ... need to impart to ... children (Elkind, 1981, p.67).

ADDITIONAL OBSERVATIONS

1. Waiting and Other Activities. Although the focus of this

study was not 'wait time' or 'other activities' a relatively large portion of the time observed was taken up by waiting, transition and other activities not directly related to the intended learning. The four pupils in Study A spent 27 to 36 percent of the observed time in these ways with 'wait time' constituting most of this time. The pupils in Study B spent 13 to 22 percent in these ways with a little less than half of this being made up of 'wait time'. These findings are similar to those of Jackson (1976) who upon examining the details of classroom life carefully, found much of a pupil's time is spent waiting. While some time is necessary for coming into the classroom at various times during the day, the total amount of time spent waiting in the classroom can undoubtedly be reduced. Teachers must be aware of the amount of time their pupils spend waiting before there can be improvement in this area. Many teachers are not conscious of the significant amount of time spent in this way and therefore it may be the responsibility of the administration to raise teacher consciousness in this area.

2. Variation in Classrooms of A Given Grade Level. A dichotomy exists in Early Childhood Education in terms of educational philosophy and teaching strategies. Models of Early Childhood Education can be placed on a continuum of beliefs. On one hand there are those educators who believe that education primarily involves the acquisition of content (Bereiter and Englemann, 1966). The pupil's role in this behavioral model of education is that of a passive recipient in an active environment. The teacher's role is that of an active content-dispenser. Primary importance is given to the

intellectual development of the child. On the other hand there are educators who believe that education and personality development are realized best through self discovery methods of learning (Piaget, 1952; Hunt, 1968). The pupil's role in this developmental model of education is that of an active participant in an active environment. The teacher's role is less dominant, an observer-guide and a facilitator of learning. Both of these positions can be supported by contemporary psychological learning theories. While it would be erroneous to think of the two classrooms studied as falling at opposite ends of a such continuum, the results do demonstrate that pupils in a given grade within the same school division may engage in various instructional activities to different degrees. It appears that a wide variation can occur in classrooms of a given grade level within any single school division. If parents and educators are aware of this wide variation, choices can then be made with regard to pupil placement based on the pupils needs and parents expectations. Hamman (1984) found the environment of the classroom to be one factor parents considered when selecting a school for their child.

3. Increase the Amount of Classroom Time Spent Engaged With Books. Research indicates that the amount of time spent engaged in the act of reading is positively associated with learning to read (Meek, 1982; Holdaway, 1979). If the findings of this study are wide spread, then it is imperative that educators strive to increase the amount of time spent by pupils engaged in reading. In addition, the time spent by the teacher reading to the children may also need to be increased as research implies this activity is positively associated

with children learning to read (Meek, 1982; Holdaway, 1979).

4. Curriculum. A curriculum is written and is intended as a guide and a resource. As stated in the Alberta Education Language Arts Curriculum Guide (1982) "the advice and direction offered is suggestive" (Forward section of the document) and can aid in the selection of learning experiences, assessment of needs and evaluation of progress. The curriculum should be adapted to the pupil's needs and should not become a daily plan to be implemented. Children profit intellectually, physically, socially and emotionally from a curriculum implemented through a wide range of experiences (McCarthy, 1983). The instruction employed in classrooms should depend on what is being taught and the needs of the learners rather than selecting one theory to describe all learning. According to Elkind (1982) children learn in many different ways and therefore, flexibility in instruction is of key importance in the classroom.

IMPLICATIONS FOR FURTHER RESEARCH

Descriptive research generates questions rather than answers (Duffy, 1983). Several questions have arisen from this study which could be addressed in future research.

1. The focus of this study was not on the teacher's verbal behavior or influence but rather on the pupils and their learning activities during the school day. However, such a large part of pupil-teacher interaction in both classrooms observed consisted of listening to the teacher speak to a group. It may be important to

observe and document this type of interaction and to determine if it does vary in classrooms of differing environmental designs.

2. The learning tools/materials used in these two classrooms varied. Does the use of different learning tools/materials in a given grade make a difference on what children learn?

3. In what way does teaching philosophy influence environmental design of a classroom?

4. In what way does teaching philosophy influence the style of pupil-teacher interaction utilized?

5. Do the evaluation procedures used by teachers in classrooms of different environmental design vary?

6. What do the pupils understand of their classroom environments? A study could be conducted to allow pupils to express their views, feelings and opinions on the different classroom situations which, by necessity, are imposed on them.

7. What do teachers know of the play that occurs in their classrooms? Individual studies could be undertaken by teachers themselves in their own classrooms or in conjuction with a researcher. Examination of existing classroom play could document the development of play, use of various play props, and the role of both teacher and pupil in play episodes.

> It is difficult to get a the dynamics of what goes on in classrooms. And looking at what students do doesn't tell us all that they learn. But looking at classroom phenomena through the eyes of teachers, students, and observers tells us something about the relationships between teachers and students and among students. (Goodlad, 1984, p.95)

CONCLUDING STATEMENT

Bruner (1982) maintains "you can design environments that make people clever and environments that make people stupid (p.59)". Today's school environments need to be designed to make today's pupils clever.

> The question that must be asked, and considered seriously, and reconsidered as knowledge and circumstances change, is whether the school experience really is good for ... children - as good as we could make it (Donaldson, 1978, p.13).

If today's schools are primarily concerned with the development and enhancement of intelligence; if intelligence is linked with play through transformation and language (Yawkey, 1979); and if a child's natural medium of learning is through play (Weininger, 1979) then teachers must plan for classroom play . The appropriate planning for play experiences in the classroom will be beneficial for both teachers and their pupils. Time, space, materials, interaction and teacher/adult guidance are all important factors to be considered when planning for classroom play.

The greatest contribution of play may be that it enhances the child's total development - intellectual, physical, social, emotional, and creative. In addition, play in childhood is natural and spontaneous and does not have to be "forced". A child's learning can occur naturally through play. With the obvious benefits and support for the use of play, one is left to wonder and question why play is not being more extensively used in classroom learning.

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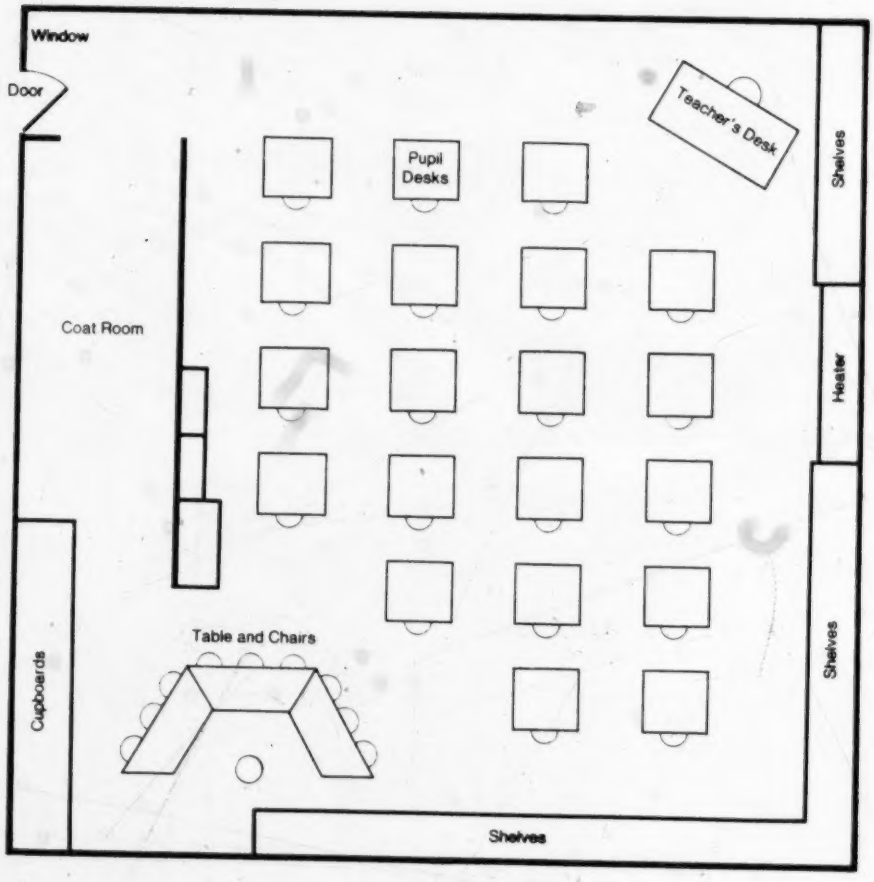
APPENDIX A

FLOOR PLAN AND DAILY TIME TABLE OF THE CLASSROOM OBSERVED IN STUDY A

APPENDIX A

CLASSROOM FLOOR PLAN - STUDY A



APPENDIX A

DAILY SCHEDULE

STUDY A

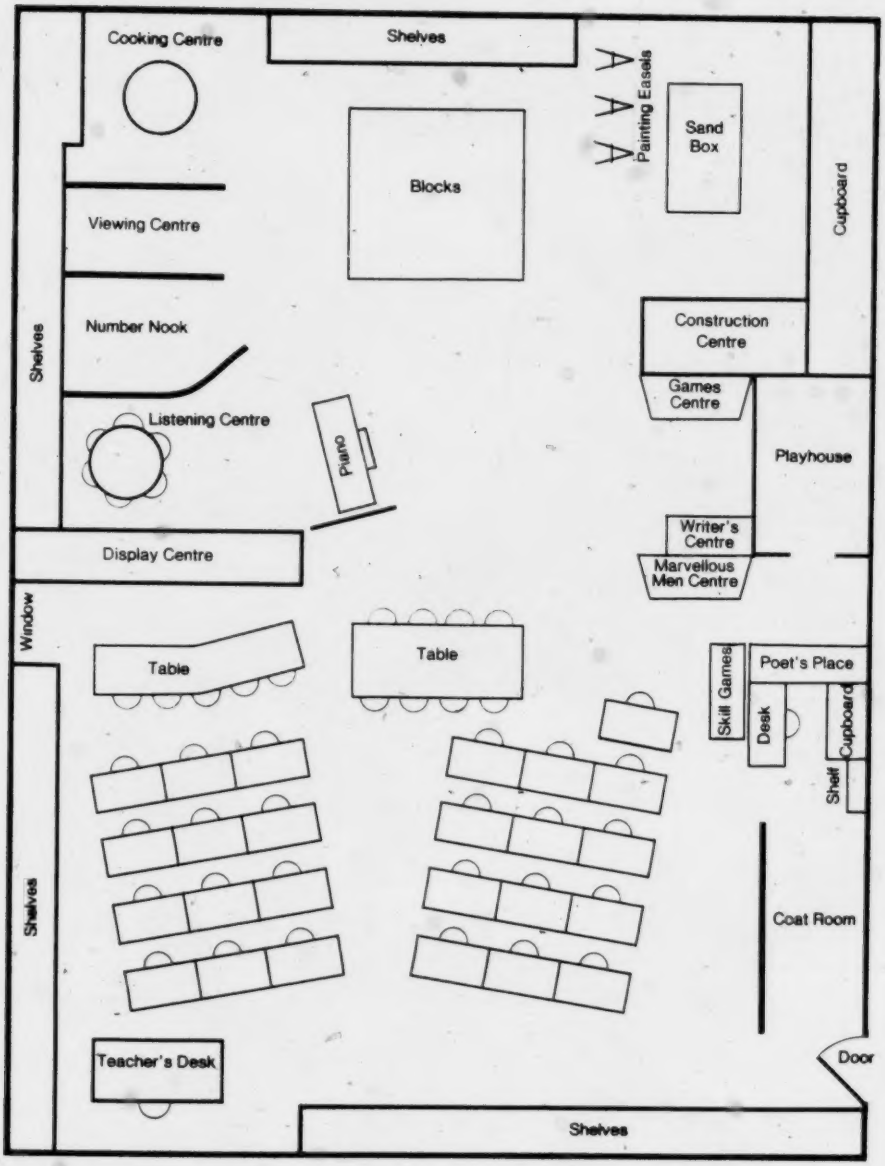
	Monday	Tuesday	Wednesday	Thursday	Friday
8:45 - 9:45	Language Arts - Early Shift				
9:45 - 10:00	Music				
10:00 - 10:30	Phonics	Science	Phonics	Phonics	Science
10:30 - 10:45	Recess				
10:45 - 11:15	Math	Math	Math	Literature	Math
11:15 - 11:45	Math	Gym	Math	Math	Literature
11:45 - 1:00	Noon				
1:00 - 1:15	Printing				
1:15 - 2:00	Soc. St.	Soc. St.	Art	Soc. St.	Gym/Health
2:00 - 2:15	Story				
2:15 - 2:30	Recess				
2:30 - 3:301	Language Arts - Late Shift				

APPENDIX B

FLOOR PLAN AND DAILY TIME TABLE OF THE CLASSROOM OBSERVED IN STUDY B

APPENDIX B

CLASSROOM FLOOR PLAN - STUDY B



APPENDIX B

DAILY SCHEDULE

STUDY B

8:45 - 9:00	Opening Exercises
9:00 - 9:30	Gym
9:30 - 10:30	Language Arts
10:30 - 10:45	Recess
10:45 - 11:55	Math Activities
11:55 - 1:10	Noon
1:10 - 1:30	Circle Time - Language Arts - Show and Share
1:30 - 2:15	Activity Time
2:15 - 2:30	Recess
2:30 - 3:00	Social Studies
3:00 - 3:30	Special Activities

APPENDIX C

LETTER TO PARENTS

APPENDIX C

January 25, 1985

Dear Parents,

During the week of January 28th we will be observing in your child's classroom. We are presently enrolled in a Master of Education program at the University of Alberta and this practical classroom experience will enhance our studies.

We look forward to the time we will spend with Mrs. A. and the grade one pupils at _____Elementary School.

Yours sincerely,

Mary Neely

Kae Neufeld

APPENDIX D

SAMPLES OF COMPLETED CODING INSTRUMENTS

Coding Sheet # 2 Date 28/01/85 Observer Mary Lesson Arithmetic Time 10:55 - 11:05

Pupil	Time	Pupil - Teacher									Pupil - Pupil										Pupil - Material							CWT	Other	Comments	Setting		
	Min Sec	LG	LI	S	D	C	A	Q	NV		L	LA	D	S	Y	X	BX	Q	NV		E	NE	O	C	M	P	B				I	S	L
#1	10:55:00																					D		D		D							✓
	10:57:00																					n		n		n							✓
	10:59:00																					D		D	D								✓
	11:01:00	D																															✓
	11:03:00																					D		D		D							✓
#2	10:55:30																												✓				✓
	10:57:30																												✓				✓
	10:59:30	D																															✓
	11:01:30																					D		D		D							✓
	11:03:30	D																															✓
#3	10:56:00																													✓			✓
	10:58:00																												✓				✓
	11:00:00																					D		D	D								✓
	11:02:00																					n		n		n							✓
	11:04:00																					D		D	D								✓
#4	10:56:30																												✓				✓
	10:58:30																					n		n		n							✓
	11:00:30																					D		D	D								✓
	11:02:30																					D		D	D						"		✓
	11:04:30																					D		D	D						"		✓

Pupil-Teacher Interaction
- LG = Listening to teacher speak to a group
- LI = Listening to teacher speak to an individual
- S = Teacher reads/tells story
- D = Dialogue
- C = Contributing to teacher led group
- A = Answers question
- Q = Asks question
- NV = Non-verbal cooperation

Pupil-Pupil Interaction
- L = Listening to another pupil
- LA = Listening to another pupil answer
- D = Dialogue
- S = Sharing
- Y = Non-verbal demonstration
- X = Verbal directions/instructions
- BX = Being directed/instructed
- Q = Asking question
- NV = Non-verbal cooperation

Pupil-Material Transaction
- E = Experimentation
- NE = Non-experimentation
- O = Open structure
- C = Closed structure
- M = Manipulative material
- P = Paper/pencil activity
- B = Book

CWT = Child's Wait Time

Other = Other Activities

Setting
- I = Individual
- S = Small Group
- L = Large Group

Coding Sheet # 6 Date 30/01/95 Observer Mary Lesson Phonics Time 11:05 - 11:15

Pupil	Time Min	Time Sec	Pupil - Teacher: LG	LI	S	D	C	A	Q	NV	Pupil - Pupil: L	LA	D	S	Y	X	BX	Q	NV	Pupil - Material: E	NE	O	C	M	P	B	CWT	Other	Comments	Setting: I	S	L
#1	11	05:00	D																			D	D		D							✓
	11	07:00	D																											" / printing			✓
	11	09:00																										✓		other to complete			✓
	11	11:00	D																											re: printing			✓
	11	13:00		D																										to move to shared			✓
#2	11	05:30	D																			D	D		D					printing / related wk.			✓
	11	07:30																										✓		to have wk. corrected			✓
	11	09:30	D																														✓
	11	11:30																										✓		for next wd.			✓
	11	13:30																										✓					✓
#3	11	06:00																				D	D		D					printing			✓
	11	08:00																										✓		to have wk. correctly			✓
	11	10:00																										✓		for next word			✓
	11	12:00																				D	D		D					printing			✓
	11	14:00																										✓		watch p. at board			✓
#4	11	06:30																				D	D		D					printing			✓
	11	08:30	D																											to label			✓
	11	10:30																				D	D		D								✓
	11	12:30																										✓		to have wk. corr. bk.			✓
	11	14:30																										✓		to return to another p.			✓

Pupil-Teacher Interaction

- LG = Listening to teacher speak to a group
- LI = Listening to teacher speak to an individual
- S = Teacher reads/tells story
- D = Dialogue
- C = Contributing to teacher led group
- A = Answers question
- Q = Asks question
- NV = Non-verbal cooperation

Pupil-Pupil Interaction

- L = Listening to another pupil
- LA = Listening to another pupil answer
- D = Dialogue
- S = Sharing
- Y = Non-verbal demonstration
- X = Verbal directions/instructions
- BX = Being directed/instructed
- Q = Asking question
- NV = Non-verbal cooperation

Pupil-Materi Transaction

- E = Experimentation
- NE = Non-experimentation
- O = Open structure
- C = Closed structure
- M = Manipulative material
- P = Paper/pencil activity
- B = Book

CWT = Child's Wait Time

Other = Other Activities

Setting

- I = Individual
- S = Small Group
- L = Large Group

Coding Sheet # 1 Date 12/02/85 Observer Mary Lesson _____ Time 9:00-9:10

Pupil	Time Min Sec	Pupil - Teacher LG	LI	S	D	C	A	Q	NV	Pupil - Pupil L	LA	D	S	Y	X	BX	Q	NV	Pupil - Material E	NE	O	C	M	P	B	CWT	Other	Comments	Setting I	S	L
#5	9:00:00	D																													✓
	9:02:00									D																		thankful for			✓
	9:04:00																									✓		t at door with parent			✓
	9:06:00	D																										Mrs B thankful for			✓
	9:08:00	D																										What's new in room?			✓
#6	9:00:30									D									D		D		D					multwk / thankful for			✓
	9:02:30										d																	re: multwk			✓
	9:04:30	D																	D		D		D					thankful / wk bk			✓
	9:06:30	D																	D		D		D					thankful / multwk bk			✓
	9:08:30															d												re: multwk			✓
#7	9:01:00										D																	thankful for			✓
	9:03:00									D																		" "			✓
	9:05:00																										✓	intercom announ			✓
	9:07:00	D																										What's new? / thankful			✓
	9:09:00									D																					✓
#8	9:01:30	D																										thankful for			✓
	9:03:30										D																	"			✓
	9:05:30	D																										"			✓
	9:07:30									D																		draw & what's new?			✓
	9:09:30															d												re: multwk bk			✓

Pupil-Teacher Interaction

- LG = Listening to teacher speak to a group
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- S = Teacher reads/tells story
- D = Dialogue
- C = Contributing to teacher led group
- A = Answers question
- Q = Asks question
- NV = Non-verbal cooperation

Pupil-Pupil Interaction

- L = Listening to another pupil
- LA = Listening to another pupil answer
- D = Dialogue
- S = Sharing
- Y = Non-verbal demonstration
- X = Verbal directions/instructions
- BX = Being directed/instructed
- Q = Asking question
- NV = Non-verbal cooperation

Pupil-Material Transaction

- E = Experimentation
- NE = Non-experimentation
- O = Open structure
- C = Closed structure
- M = Manipulative material
- P = Paper/pencil activity
- B = Book

CWT = Child's Wait Time

Other = Other Activities

Setting

- I = Individual
- S = Small Group
- L = Large Group

Coding Sheet # 2 Date 13/02/85 Observer Mary Lesson _____ Time 9:40 - 9:50

Pupil	Time	Pupil - Teacher									Pupil - Pupil									Pupil - Material							CWT	Other	Comments	Setting		
	Min Sec	LG	LI	S	D	C	A	Q	NV		L	LA	D	S	Y	X	BX	Q	NV		E	NE	O	C	M	P	B				I	S	L
#5	9:40:00	D																												organizing game		✓	
	9:42:00											D																		r: game		✓	
	9:44:00		D																		D		D		D					r: shuffling cards		✓	
	9:46:00				d																									r: game at home		✓	
	9:48:00							d											d											moving room		✓	
#6	9:40:30	D																												demonstrating		✓	
	9:42:30	D																			D		D		D					computer		✓	
	9:44:30							d											d											watching p on computer		✓	
	9:46:30							d											d													✓	
	9:48:30				d																									r: word		✓	
#7	9:41:00													d																postman prep		✓	
	9:43:00																				D		D		D					mailing letters		✓	
	9:45:00	D																												Are you ashamed?		✓	
	9:47:00																				D		D		D					sorting mail		✓	
	9:49:00																				D		D		D					"		✓	
#8	9:41:30																		d											playing game		✓	
	9:43:30	D																												a game		✓	
	9:45:30											d																		"		✓	
	9:47:30					d																								r: card for game		✓	
	9:49:30																		d											pupil moving marker		✓	

Pupil-Teacher Interaction
- LG = Listening to teacher speak to a group
- LI = Listening to teacher speak to an individual
- S = Teacher reads/tells story
- D = Dialogue
- C = Contributing to teacher led group
- A = Answers question
- Q = Asks question
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- L = Listening to another pupil
- LA = Listening to another pupil answer
- D = Dialogue
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- X = Verbal directions/instructions
- BX = Being directed/instructed
- Q = Asking question
- NV = Non-verbal cooperation

Pupil-Material Transaction
- E = Experimentation
- NE = Non-experimentation
- O = Open structure
- C = Closed structure
- M = Manipulative material
- P = Paper/pencil activity
- B = Book

CWT = Child's Wait Time

Other = Other Activities

Setting
- I = Individual
- S = Small Group
- L = Large Group

APPENDIX E

INTEROBSERVER AGREEMENT

APPENDIX E

Interobserver Agreement

(70 minutes of observation)

Time of Coding	Number of Decisions	Number of Agreements	Number of Disagreements	Coefficient of Reliability
Prior to the Study	140	130	10	0.96
During Study A	140	126	14	0.95
During Study B	140	132	8	0.96
Total	420	388	32	0.96

APPENDIX F

SUMMARY OF DATA

APPENDIX F

TIME OBSERVED IN EACH GENERAL CATEGORY - STUDY A

Target Pupil	Teacher		Pupil		Material		Wait Time		Other		Teacher and Material		Teacher and Pupil		Pupil and Material		Teacher and Pupil and Material		TOTAL	
	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*
#1 - more outgoing girl SARAH	182	33.7	56	10.4	70	13.0	108	20.0	86	15.9	18	3.3			20	3.7			540	100
#2 - more outgoing boy JOE	188	34.8	52	9.6	84	15.6	102	18.9	78	14.4	28	5.2			8	1.5			540	100
#3 - less outgoing girl ELIZABETH	174	32.2	70	13.0	76	14.0	108	20.0	70	13.0	14	2.6	2	.4	26	4.8			540	100
#4 - less outgoing boy BOB	186	34.4	44	8.2	122	22.6	98	18.2	50	9.2	24	4.4	6	1.1	10	1.9			540	100
TOTAL	730	33.8	222	10.3	352	16.3	416	19.2	284	13.1	84	3.9	8	.4	64	3.0			2160	100

* This column indicates the percentage of the 540 observed minutes.

APPENDIX F

TIME OBSERVED IN EACH GENERAL CATEGORY - STUDY B

Target Pupil	Teacher		Pupil		Material		Wait Time		Other		Teacher and Material		Teacher and Pupil		Pupil and Material		Teacher and Pupil and Material		TOTAL	
	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*	Mins.	%*
#5 - more outgoing girl ANN	186	34.4	90	16.7	86	15.9	54	10.0	66	12.3	20	3.7	12	2.2	26	4.8			540	100
#6 - more outgoing boy BRANDON	160	29.6	132	24.5	106	19.5	36	6.7	32	5.9	12	2.2	14	2.6	44	8.2	4	.7	540	100
#7 - less outgoing girl JANE	160	29.6	132	24.5	84	15.6	52	9.6	62	11.5	12	2.2	18	3.3	20	3.7			540	100
#8 - less outgoing boy MICHAEL	180	33.3	104	19.3	106	19.6	34	6.3	66	12.2	20	3.7	14	2.6	16	3.0			540	100
TOTAL	686	31.7	458	21.2	382	17.7	176	8.1	226	10.5	64	3.0	58	2.7	106	4.9	4	.2	2160	100

* This column indicates the percentage of the 540 observed minutes.